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THE CAUSES AND PREVENTION OF MATERNAL MORBIDITY AND MORTALITY.[1]

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(*Continued from page* 611.)

The Rationale of Prevention as Applied to the Third Stage of Labour and the Puerperal Period.

THE mortality caused by and the morbidity arising from the faulty conduct of the third stage of labour is only too well known. This constitutes a very serious indictment, but is nevertheless indisputable.

The most serious defaulter is the untrained, half trained and fully trained midwife. In advocating the continuance of the traditional midwife, her supporters have argued that the statistics of her cases are very little or if at all inferior to those of the medical man.

I shall now proceed to explain this apparent paradox.

A denunciation of meddlesome midwifery has already been made at great length. Following on what was said of the prognosis in all cases of contracted pelvis if left alone, I feel confident in prophesying that were every patient in labour uninterfered with there would be little greater mortality and much less morbidity than exists today. The explanation of the paradox is now evident; the medical man can and does interfere both during labour and afterwards during the third stage; except for the making of vaginal examinations, the midwife is denied the opportunity to interfere during labour, but more often does so during the third stage.

One can further deduce that were the midwife to improve in her management of the third stage, her results might be even better than those of the medical man.

Thus is represented a very serious state of affairs, but even in spite of this I do not view with favour the retention of the midwife.

What is responsible for the mismanagement of this important stage? Haste, ignorance and lack of conscience must be mentioned as the contributing agents.

[1] Being an essay judged by the Melbourne Permanent Committee for Post-Graduate Work to be worthy of the second place in the prize essay competition. The essay has been submitted as a thesis for the degree of doctor of medicine at the University of Melbourne.

The child having been born and any necessary sutures inserted, the fundus is quickly "attended to," often being heavily pressed on and the placenta is thus expelled. A couple of mouthfuls of ergot and the attendant is off.

This pictures, although in the extreme, what actually occurs at times. To continue, in such a case the placenta may not come away and without any more ado it is manually removed!

The requirements in the conduct of the third stage are to await or to promote the natural separation of the placenta; it may then be delivered or expelled by "simple expression" from the vagina. Thus the placenta and membranes will be delivered complete and no possible nidus for infecting organisms will remain in the uterus. Nor is hæmorrhage likely to occur and infection will not have been introduced. Careful inspection of the placenta and membranes is an essential for the intelligent management of the puerperium, but this is often omitted. It is necessary to add that I consider the manner of delivering the placenta by placing the receiving hand in contact with the perineum to be a decided breach in aseptic technique. This hand, gloved or otherwise, is in very many cases incompletely sterilized after the delivery of the child and it is evident that organisms may be very easily introduced into the genital tract. In the method adopted at the Rotunda Hospital, Dublin, the third stage is completed without any such procedure and I wish to emphasize that this method should be taught to and adopted by both nurses and physicians. It is completely described in Fitzgibbon's "Practical Midwifery."

Hence with very few exceptions the placental stage, if properly conducted, will be in no way responsible for either morbidity or mortality.

How will improper management of the third stage produce higher morbidity and mortality rates?

The immediate dangers as the result of mismanagement and the number of abnormal conditions which may arise, are very many and important.

If by interference the normal separation is interfered with in any way, partial separation may result and in consequence *post partum* hæmorrhage may occur. This may prove rapidly fatal and unfortunately most obstetricians have met with at some time or other such a "gusher." In any case intrauterine manipulations will be necessary and organisms will almost certainly be introduced.

If separation and expulsion be effected by premature resort to Crédé's method, that is by brute force, it is almost certain that portions of the placenta and membranes will be retained in the uterus. These are likely to cause either primary or secondary *post partum* hæmorrhage and also are extremely liable to become infected. If in spite of this expulsion be not effected, there is the condition of retained placenta demanding manual removal. This retention may be due either to failure of the normal mechanism of separation or else to imprisonment of the separated placenta in the uterus due to "hour-glass" or local tonic contraction.

This latter condition may also complicate the third stage when pituitrin has been administered, either during labour or else before completion of the third stage. This constitutes one of the indiscriminate uses of pituitrin already referred to.

And as the extreme and happily rarest complication of all measures of force, there may result acute inversion of the uterus.

One cannot readily believe that the risks of the dangers due to these complications would so frequently be taken, if all were fully aware of the ease with which any one may happen.

Let it here be stated that *post partum* hæmorrhage should be a very rare complication of the third stage, were it always properly conducted.

However, it may occur unavoidably in the following conditions:

1. Pathological conditions of the placenta, causing partial adhesion.
2. *Placenta accreta* (Polak).
3. Extreme atony of the uterus.
4. Paralysis of the placental site.

The last three conditions are extremely rare.

I cannot believe that the dangers of manual removal of the placenta are fully estimated. Does the operator realize that he is bringing his hand in direct contact with large open blood sinuses? Yet this operation in private practice is comparatively frequent and a most potent factor in the upkeep of the morbidity and mortality rate. I recall, for example, instances in which following unsuccessful attempts at expression, no doubt premature, and in the absence of hæmorrhage, this operation was immediately resorted to.

Thus it will be seen that very few complications need be feared, following the proper conduct of the placental stage. But the neglect to do so will be responsible for many abnormalities and sequelæ, each associated with great mortality and a still higher morbidity.

During the puerperium the rationale of prevention is concerned with the supervision of the general hygiene, the continuation of the regard for the genital tract as a *noli me tangere,* the proper management of lactation and the observance of the changes occurring in the process of involution.

Fitzgibbon states: "The puerperal period is not a period of disease and should not be treated as such. The principal object is to promote the natural changes on physiological lines."

At the same time it is important that abnormal changes be recognized and treated. All pathological conditions arising from the management of labour must be limited.

Under general hygiene will come the prevention of pyrexia and other reflex disturbances due to constipation. Attention to the bladder is to be carefully noted and catheterization not to be indiscriminately performed. The personal cleanliness of the patient and the maintenance of asepsis as applied to the region of the vulva and perineum are likely to prevent the introduction of infection at this stage.

The care of the breasts and nipples commenced from the prenatal period must proceed, especially with the onset of lactation, in order to prevent formation of cracks, fissures and ulcers which form the portals of entry for organisms. Pyrexia due to inflammatory conditions of the breast is usually evident about the tenth day and if not promptly treated, may be the cause of much morbidity, both immediate and remote.

It is of very great importance that retention of the lochia does not result from the falling back of the body of the uterus into the retroflexed position; not only this, but it is of equal importance that for the future health of the mother any such position of the uterus must be corrected at once.

Subinvolution is the cause of much ill health later on and is very frequently met with in the out-patients' department. It results from either getting up too soon or from a mild type of infection or from both and it is of great importance that the patient be kept in bed until the level of the fundus is below the *symphysis pubis*.

Gonococcal infections of the upper part of the genital tract are very prone to make their appearance late in the second week of the puerperium. Naturally the recognition of this infection and its treatment during the prenatal period will greatly minimize the incidence of these conditions.

The actual treatment of infection becoming clinically evident during the period will be dealt with subsequently.

Note must be made of the complication of pyelitis so frequently observed in Victoria and yet comparatively uncommon in Dublin, Edinburgh and other cities. Constipation has been blamed for being a very powerful predisposing factor. It is also likely that catheterization plays an important part in the introduction of organisms into the urinary tract. In spite of these views I am not impressed with their soundness; I believe that the cause lies farther afield and that it may subsequently be found in the biochemistry of the blood.

Excluding deaths due to fulminating cases of infection, peritonitis, eclampsia (*post partum*) and those rare cases of sudden death occurring after labour, it will be seen that prevention in the puerperium is mostly concerned with the recognition of conditions likely to cause morbidity and with the treatment of morbid conditions already evident.

The morbid conditions are both genital and extragenital in distribution. As extragenital causes must be mentioned in addition to pyelitis, mastitis, constipation, influenza, tonsillitis, bronchitis and pulmonary tuberculosis as common causes of a rise of temperature and constitutional disturbance.

It is most advisable that a pelvic examination be made of every woman before getting up or if not then at any rate within six weeks.

In this way those conditions referred to as the causation of remote morbidity will be recognized and suitable treatment instituted. In a public hospital this is best arranged to be carried out in the "follow-up" clinic. In private practice it is often difficult to make the examination, owing to the patient's objections for various illogical reasons.

The rationale of this period thus consists in a limitation of the damage already done by trauma, in the limitation of the spread of any organisms that may have been introduced and in the endeavour to assist Nature in the promotion of the processes of healing and involution. It is also equally concerned in the prevention of further injury and introduction of infection, either genital or extragenital.

The Rationale of Curative Treatment in the Prevention of Morbidity and Mortality.

Prevention when applied to its maximum potentiality will remove the necessity of all curative measures. Unfortunately as yet it cannot be so applied and consequently conditions do arise calling for the application of curative measures. More unfortunately still there remain many diseases for which treatment must as yet be empirical, whilst in others—the minority—it is along scientific and rational lines.

Curative treatment must never, however, be irrational or contrary to the laws of Nature and one's knowledge, even though only represented by common sense and it is in this respect that it has an important influence in reducing both morbidity and mortality.

Dealing first with the toxæmias of pregnancy, many theories have been advanced to explain their causation.

Until very recently the number of drugs and procedures recommended for the treatment of *hyperemesis gravidarum* were legion. Today, although the same theories still hold, the drugs have largely vanished and starvation and elimination are almost everywhere adopted instead.

Psychotherapy still, however, retains its value in certain cases. Most usually by these means the condition disappears and it is of importance to note that pregnancy must be terminated before the patient reaches such a toxic condition indicative of serious damage to the liver.

Eclampsia, however, at the present day offers the great problem in obstetrics in respect to its curative treatment.

Here again the pathological changes in the viscera are well known, yet the exact cause of the condition is quite unknown. The theories, however, as to its causation are so numerous that they represent almost every line of thought in modern physiology, endocrinology, biology and biochemistry.

In spite of this two methods of treatment have been evolved, each founded on two quite different theories and diametrically opposed to one another. These methods are the only two in use today which can be regarded as being at all successful.

The treatments referred to are the Dublin method and Stroganoff's. The theory held in Dublin is "that the cause of the disease is a toxæmia or rather a saturation of the tissues with a toxin which is generated in the intestines as the result of stasis,

promoted by the inevitable dislocation of the intestines during pregnancy and accentuated by neglect of bowel evacuation and excessive ingestion of food superimposed upon the metabolism of pregnancy" (Fitzgibbon).

The Dublin method is simply elimination.

In 1922 Fitzgibbon and Solomons reported two hundred and four cases from Dublin with a mortality of 10·3%.

Stroganoff's method aims at controlling the convulsions. In a series collected by him in 1918 there was a mortality of 9·8% and in 1924 Weisenfels collected 3,302 patients treated by this method with a mortality of 10·8%.

Among two hundred and thirty patients treated personally by Stroganoff the mortality was only 1·7%.

Both methods, however, contraindicate wholly the performance of any form of obstetric operation, with the exception of forceps, which may be used to assist delivery in the second stage. Indeed, both methods entirely disregard the pregnancy.

The indication for Cæsarean section for this condition has already been fully discussed.

Thus eclampsia is a condition that must be treated by a standardized method and on this basis rests the success so obtained by Stroganoff and by Tweedy and his disciples from Dublin.

Until further elucidation of the ætiology of eclampsia let him who ventures off the beaten track beware!

Dystocia and hæmorrhage have already been discussed. It is important that in all cases the exact cause of the hæmorrhage must be determined. It is now generally regarded that hæmorrhage associated with albuminuria is simply a symptom of a toxæmia which may also cause either vomiting or convulsions, and in the treatment of such a hæmorrhage eliminative treatment for the toxæmia must also be added to that for the hæmorrhage.

The treatment of *placenta prævia* has been fully referred to.

The treatment of puerperal infections calls, however, for very special comment.

Since the bacterial origin of puerperal fever was first discovered, the treatment has not only been extraordinary by reason of the number of different methods adopted, but it has also been the subject of much controversy. Even regular "schools" have arisen because of this. Yet today there does not exist any single satisfactory method of treatment for these infections.

Every now and then an enthusiast reports a series of cases, usually comparatively small, in which the new treatment had been adopted with an apparently improved result as represented by the percentage mortality. Usually nothing further is reported by the enthusiast and one surmizes that a succession of cases ending fatally has caused a change both in the views and the method.

Thus, corresponding to the number of investigations concerning the modes of infection and sources of the bacteria, numerous vogues in treatment have grown up.

The treatment can be described under four parts, namely, local, general, specific and surgical measures.

In regard to the latter hysterectomy has been performed on occasions and also ligature of the pelvic veins; neither of these operations are widely resorted to for obvious reasons.

Of specific measures very much was expected and very little has resulted.

In 1895 Marmorek discovered an antistreptococcal serum and immediately the prospects of dealing successfully with puerperal infection appeared brightened.

De Lee states that "after twenty-one years of trial with sera of all kinds we must decide that antistreptococcal serum does not cure puerperal streptococcic infection." However, it has no deleterious effect upon the patient.

Vaccine therapy was next welcomed as a saviour, but Sir Almroth Wright did not have any such expectations in streptococcal infections, although he stated that improvement might result in certain chronic cases due to the staphylococcus or gonococcus.

Polak, however, is more optimistic and has produced evidence of surprising results.

I have been very greatly impressed with the value of blood transfusion by the citrate method from a suitable donor and it appears to be of value in the true septicæmia or bacteriæmia, especially when no local lesion is evident.

In regard to general treatment, the lines on which it is employed are all with the object of raising the patient's resistance to the attacking organisms and so stimulating Nature's methods of attack and repair.

The value of the promotion of drainage from the uterine cavity does appear to be underestimated. At the Rotunda Hospital all patients are encouraged to sit up for short periods, as soon as the morning following delivery. Fowler's position is really of little value for uterine drainage; the position of the body must be "complete sitting and a little forward of the vertical."

Fitzgibbon says: "If this is insisted on during the puerperium, the number of morbid cases would be considerably reduced from that found under the *régime* of the supine posture."

This is a logical procedure and one of great value in assisting that essential factor in wound treatment, namely free drainage and in this method there is no added danger.

Naturally a complete general examination must be made and also an examination of the vulva and vagina by sight and by touch under conditions of strict asepsis. It is recommended that it is essential to obtain specimens of the lochia and blood for bacteriological examination from every patient presenting any features of infection. The lochia is best obtained by the modification of Döderlein's method devised by Little.

Of very much more importance than all the foregoing is the question of the value of local treatment.

I do not wish to refer to the obvious treatment of the puerperal ulcer or the infected perineum or the pelvic abscess. It is desired, however, that great attention be given to the question of local treatment to the uterus.

The form of infection and the lesion most frequently present is a puerperal endometritis. In this the ideas of local treatment are: (i.) to remove the offending bacteria and their toxins, (ii.) to take away clots, *débris*, upon which they grow ideally, (iii.) to destroy any bacteria remaining after this and (iv.) to neutralize any toxins.

Theoretically all these procedures are excellent, but most unfortunately the carrying out of them is unsafe. The procedures adopted to accomplish these objects are intrauterine douches, swabbing of the uterus with antiseptics on gauze, curettage and drainage by the Carrel-Dakin or similar technique. In consideration of these all are unsatisfactory, because all the offending bacteria cannot be completely removed and all those remaining cannot be destroyed. Thus even on these grounds alone the value of local treatment appears to be small. This would not matter, but in the employment of these measures very much more harm is added to that already existing.

Firstly, it is extremely difficult to be certain that no fresh organisms are introduced, which if they were, living in symbiosis with those already present, would greatly increase the virulence of all. Secondly, by these manipulations further wounds are inflicted, thereby opening up new channels for spread and causing further extension along those channels already involved. Thirdly, by curettage is destroyed the important leucocytic barrier or zone of protective infiltration. Lastly, the *débris* formed as the result of suppuration and necrosis almost immediately recurs following its removal; moreover it tends to remove itself by satisfactory drainage.

In spite of the conflicting opinions existing as to the exact ætiology of infection and the curative methods adopted, more advocates for the school of non-interference are rapidly becoming enrolled, so that today the majority of obstetricians still carry out the maxim of strict *noli me tangere* as applied to the infected puerperal uterus.

There are, however, still some who are unaware of the absolutely scientific rationale of non-interference and who exhibit as soon as the lochia becomes offensive and the temperature rises, not only the intrauterine douche, but also the curette. Moreover, among those who practise this their explanation of "a little piece of after-birth left behind" would be quite unnecessary were they conscientiously to examine the placenta and membranes after their delivery and thereby at once take the proper steps if the placenta were grossly incomplete.

Thus one feels certain that the universal recognition and adoption of the policy of non-interference in any form in an infected puerperal uterus would at once cause a very great decrease in mortality in those patients in whom puerperal infection occurs in any form.

Mention must be made of the treatment of septic abortion. Here too the curette acting in exactly the same manner cannot fail to extend an infectious process, either locally or generally or in both directions. The morbidity and mortality resulting from this treatment are very high and before curettage is performed in such a case, it is necessary to exclude the existence of any infectious process outside the uterus.

At the present day most operators do not interfere until the temperature becomes normal. Digital curettage, however, is indicated in such cases and when performed under complete aseptic precautions is of great value.

In conclusion, if it be remembered that hæmorrhage in the puerperium is the one and only symptom demanding instant exploration of the cavity of the uterus, then puerperal infection and septic abortion will play a much less important rôle in the production of maternal morbidity and mortality.

In attempting to form an estimate of the risk of any form of curative treatment, let it be taken as a maxim that the dangers of such treatment and of any complications likely to arise from it shall not be greater than those of the condition for which it is undertaken.

PART V.

The Teaching of Obstetrics.

I have now considered the causes and contributing causes concerned in the production of maternal morbidity and mortality. Moreover, I have shown that to a very large extent the causes are preventible and that it is possible to eliminate the contributing causes. Also that by the early recognition of those conditions which at present are classed as unavoidable and by suitable treatment, they can either be removed or else be modified that no fatality should result.

The problem would now appear to be solved or at least reduced to one of simple dimensions. In reality, however, it has become more complex, for the application of the foregoing principles is concerned with that great unknown quantity, the personal equation.

The Personal Equation.

This is represented by three groups of persons, namely the medical profession, the nursing profession and the general public and is dependent on their education and training.

The training and knowledge of the doctors and nurses must, therefore, be adequate to meet the situation and the public must also be made aware of the two main faults as finally exposed. These are: (i.) the general ignorance of the dangers connected with child-birth and of the need for proper hygiene and skilled care to prevent them and (ii.) the difficulty in the provision of adequate care.

Not only must the student be absolutely fitted to fill his future profession in all its branches, but the graduate must be kept informed of the latest developments bearing on his work and especially on those relating to obstetrics.

The nurses must obtain such standard as is required by the medical profession.

The public must be told of the magnitude of the situation and taken into the confidence of those conducting this campaign.

In other words the personal factor can only be eliminated by what may be called the process of standardization. This deals with the teaching of obstetrics to students, nurses and graduates and the education of the public; it will now be considered.

The Medical Student.

We have seen that the present day knowledge of the actual causes of maternal morbidity and mortality is on a very firm basis. And knowing as we do that they can be to a very large extent prevented, we must explore the different paths of prevention and overcome the barriers and obstacles hindering this aim.

The teaching and training of the medical student in the science and the art of obstetrics is sadly incomplete and inadequate. This is a statement of fact admitted by all authorities and at the present time a subject receiving careful revision.

THE MEDICAL JOURNAL OF AUSTRALIA, in an excellent leader entitled "The Science and Art of Midwifery," advocated a proposed scheme for teaching obstetrics. My criticism, however, is that the term "midwifery" should be now completely and for all time abolished when reference is made to this scientific subject. Midwifery surely means the practice of midwives and unfortunately for our profession it comes to be regarded in this light by many practising physicians. Reference will be more fully made to this in a later paragraph.

Again, to quote THE MEDICAL JOURNAL OF AUSTRALIA: "The first fundamental mistake in the present mode of teaching is that the theoretical training is divorced from the practical."

I agree with Professor B. P. Watson about the continued usefulness of systematic lectures, but these should be modified. Twenty or thirty years ago there were very few textbooks and even these were not always available to the student. Now there are many excellent textbooks, but the whole subject cannot be covered by any single course of lectures. Therefore, I believe that systematic lectures should still be continued as a foundation on which to erect the clinical experience. However, they should not be merely an epitome of the lecturer's favourite textbook, but should be on present day obstetrical problems and should reflect the lecturer's individual experiences. Certain theoretical aspects of the subject should, however, be explained to the student, namely, the anatomy of the female pelvis, the anatomy and physiology of the female genital organs, the physiology of pregnancy and labour, a general outline of placentation and embryology and certain pathological and biochemical investigations.

With these certain exceptions the remaining lectures should deal with broad general principles, freely illustrated by models and clinical pictures. In the University of Edinburgh this scheme is adopted and comprises about fifty lectures on obstetrics. During this period the student visits the museum and practical rooms, where he acquires a further knowledge of pathology and is able to make use of models, manikins and instruments. Following this he is in a good position to acquire his practical experience. At the present time in Melbourne the student lives in hospital for about five weeks, of which three and a half are devoted to work inside the hospital and the remaining time in doing externe work. The students arrange to complete this compulsory period during the eighteen months of their final year and accordingly arrange themselves in groups of four or six. The only further work in obstetrics done by the student before graduation is the necessary book work for the passing of his final examination.

I do not think that during this period of hospital internship the student is able to acquire that obstetric sense and that obstetric conscience which later when he is left to his own resources will enable him to conduct his cases with that degree of asepsis and that principle of minimum interference which are gained only as the result of a proper obstetric sense and knowledge.

At Edinburgh, for example, every student is required to devote one term of ten weeks in his final year to the study of clinical obstetrics, clinical gynæcology and diseases of children. As the last two subjects occupy on an average not more than an hour a day each, the student lives in an atmosphere of obstetrics for this period. In Edinburgh, however, they have no long term of resident internship.

In addition to the work done indoors the work of two other departments should also form an integral part of the student's training. These two departments are the antenatal and the externe.

It is in the antenatal department that the student acquires his true perspective in respect to preventive medicine as applied to obstetrics. Here, also, he obtains his knowledge of the conduct and hygiene of pregnancy and an experience of diagnosis by abdominal palpation and of the complications of toxæmia, hæmorrhage and dystocia.

With the student fully aware and cognizant of the aims and ideals of antenatal care and its value in practical obstetrics, a great improvement would very quickly become evident.

The other department is the externe. This should also form an important adjunct to a maternity hospital and here the student should be enabled to apply his knowledge previously gained indoors, supervised and corrected, if necessary, by a proficient member of the hospital resident externe staff. At the Rotunda Hospital, Dublin, there are some students living in the hospital for varying periods

up to six months. In addition to learning practical obstetrics, they receive a course of systematic lectures from the Master and see all the work done in the hospital during their term.

In addition to attending normal confinements within the hospital, they do the whole of the externe work. This externe practice is as large as that of the interne and each student is able personally to conduct twenty cases. They work in pairs and each student must supply himself with full obstetric kit. Their work is controlled and supervised by a member of the resident externe staff and there is no interference by midwives. In this manner the student is fully prepared to work under conditions which exist today outside of maternity hospitals. But more important still is that he can by using the Rotunda methods and technique, conduct a labour in an almost identical manner as is done within the hospital where he has already acquired his aseptic conscience.

As proof of the efficiency of this plan of training and of the Dublin methods of technique the figures of maternal morbidity and mortality of each department may be compared and when one realizes the poverty and insanitary conditions which exist on the externe service, one is more than ever convinced of the value of preventive methods.

In dealing with any proposed plan for improving the curriculum and the teaching of obstetrics and preventive gynæcology, I would suggest two alternative plans; the first would be to have in residence a large group of students for much longer period than at present. In this manner one could have, say, twenty students in residence for from two to three months. These twenty students could be divided into three groups within the hospital, each interchanging; thus all would attend the interne practice and see all abnormal conditions during the whole period. All would also attend the clinical lectures and demonstrations.

The first group would attend the normal interne patients in order to obtain their requisite number of individual cases and each student would be required to write complete histories of all his confinements.

The second group would attend to the externe department, taking their cases in rotation and working together in pairs. They would also attend regular clinics in the antenatal department.

The third group would attend the gynæcological department, obtaining the necessary amount of instruction required by the curriculum during this period. This group would also receive instruction in diseases of children during this period.

In this manner twenty students could be thoroughly trained in obstetrics and gynæcology in such a manner as to leave a permanent impression and to give them an adequate knowledge.

An obstetric sense would thus develope from the sustained obstetric atmosphere.

As an alternative scheme I would suggest that the present system in vogue at the Women's Hospital in Melbourne be modified as follows:

1. Attendance at the antenatal department for from three to four weeks prior to entering the hospital as internes.

2. Interne residence for one month with continuation of the attendance at the antenatal department.

3. Externe residence for the period sufficient to obtain the necessary number of cases. There should be sufficient students to enable confinements to be conducted by pairs. Attendance at a "follow-up" clinic which is yet to be established. Attendance at the gynæcological department.

In this manner the student would also obtain the benefits resulting from sufficient instruction in antenatal work, but I do not consider one month's internship long enough to inculcate the obstetric sense already referred to.

During the time in which the student is associated with the hospital, his knowledge could be practically tested and as the result of this test and his general proficiency during this time a mark would be awarded, this to be considered with the marks obtained at the final examination. In this manner I believe that the student would attain a much higher level of proficiency and knowledge than at present. He would be led to see in its true light the relationship of obstetrics to gynæcology and a lasting impression would be gained as to his future duties to the profession and to the public.

Post-Graduate Training.

Dealing now with the continued training of the graduate, we must remedy another weakness in the system. Were the present generation of students given the advantages of the proposed improvements, the outlook for the near future should be brighter, but at present there exists a large number of practitioners who have had as students a comparatively minimum and restricted training in obstetrics. Of this number some have gained further knowledge only at the expense of their failures, others have not had sufficient time to gain acquaintanceship with or to be proficent in the newer methods. Unfortunately also there is another class whose only ambition is to "take a case," complete it quickly, obtain the fee and depart, leaving the people reasonably satisfied that he has done his duty properly to the patient.

In other words this can be expressed as follows: "If the entire medical profession could be made thoroughly alive to a few fundamental obstetric principles, conditions would be at once materially improved."

However, many are already alive to these principles, but are unable to apply them for two reasons:

1. They may not have the time to do so by reason of a large general practice and

2. There is no doubt that in the great majority of cases the fees are inadequate.

In explanation of the two above reasons, mention is made of the views of two authorities as to the requirements during pregnancy and labour.

Professor B. P. Watson, of Edinburgh, lays down the following requirements during pregnancy:

(i.) A thorough general examination early in pregnancy and a special examination of physical configuration.

(ii.) A careful watch at regular intervals throughout pregnancy and appropriate treatment whenever the least departure from the normal is detected.

Dr. Tweedy, a late Master of the Rotunda Hospital, gives the following requirements for the conduct of labour:

(i.) An examination when labour commences to ascertain the position of the fœtus, the rate of the fœtal heart *et cetera*.

(ii.) The obstetrician may not leave after the membranes have ruptured or the second stage has commenced.

(iii.) He must wait for the placenta one hour, if necessary, before attempting removal.

(iv.) He must remain for one hour after the delivery of the placenta.

(v.) He must pay a daily visit for six days.

(vi.) He must pay four more visits on each alternate day and carry out an examination in six weeks time.

In view of these ideal requirements it is, therefore, not surprising that all are unable to be carried out by the general practitioner.

Lynch, a teacher of the University of California, gives his views thus: "The chief cause of maternal mortality is that doctors do not like to wait. There exists a desire to substitute surgery for normal processes. The world is in a hurry. For this reason classical indications for interference no longer hold. In California after a day or two of waiting, Cæsarean section is a common occurrence; nor is the death of the child considered a contraindication for laparotomy."

Robert de Normandie, of the Harvard Medical School, by a singular coincidence affirms: "Men do something which they know is wrong and radical and the patient survives. Then such practice is continued until serious results ultimately follow."

He goes on to say: "Present day life is a tremendous hustle. This tends to more operative work than is necessary. It is done by men with absolutely no operative obstetric training" and so on.

Thus each of these eminent men agrees that the greatest proportion of blame is due to the lack of conscience on the part of those doing the bulk of obstetrics. It is, therefore, imperative that the medical profession in its entirety should be made aware of these fundamental principles, namely, the essentiality of prenatal supervision and of four simple procedures, complete physical examination, routine pelvimetry, analysis of urine and estimation of the blood pressure. All of these are either slighted or entirely omitted by a certain proportion of practitioners. The second principle is the insistence on simple ordinary asepsis.

There are still in practice many men who, knowing better, have got into careless habits, whilst some others show very rudimentary ideas concerning asepsis. It is common to find, for instance, neglect to use rubber gloves. Theobald and Quinn, assistant Masters at the Rotunda Hospital, recently wrote of the value of sterile gloves *versus* prepared hands; I am, however, emphatic about the undoubted necessity for gloves in obstetrics. It is sufficient to say that stronger antiseptics can be used with gloves on than could be applied to the bare hands and hence sterilization is more easily obtained.

Emphasis must be made in a plea for "intelligent conservatism to set off the growing fashion of all forms of operative interference."

The only manner in which all can be made aware of the above causes and made to appreciate the dangers they so often run, is by education on these principles.

How then can they be educated?

1. The immediate creation in each State of a chair of obstetrics within the Faculty of Medicine will at once raise the status and the standard of obstetrics.

The fact that the professor or director of such a unit should be the head of the teaching school of that State and that he holds a sufficiently responsible control of that maternity hospital where the teaching is carried out, will at once serve to standardize methods and technique which will generally become adopted.

2. By the organization of each State into areas for maternal welfare, consisting of maternity centres, subcentres and corresponding antenatal clinics.

3. By inclusion of more articles in the journals dealing with obstetrical subjects and by the inclusion of more papers on obstetrical subjects open to discussion at medical meetings.

4. By the formation of a section of obstetrics and gynæcology within each Branch of the British Medical Association in Australia.

5. By compulsory notification of all deaths due to pregnancy or to the puerperal state.

6. By the education of the general public as to what are the causes of maternal mortality and as to what are the duties of the medical man to a prospective mother.

It was stated that the practitioner although usually efficient was handicapped in his obstetric practice through certain circumstances. This leads me to search further afield for an explanation. A criticism must now be made of the manner in which obstetrics is today conducted in private practice and an inquiry made whether any logical reason exists for the apparent disadvantages. It must also be considered how far the Commonwealth maternity allowance has assisted the mother or helped to render material assistance to the medical profession, but this will be dealt with at a later stage.

Obstetrics in Private Practice.

It has been stated that the statistics of maternity hospitals and of individual practitioners do show a

very considerable improvement both in the reduction of mortality and also in the decreased morbidity.

Why, therefore, is the general position unchanged today? The reasons are firstly that in a very great number of cases there is no antenatal care of any kind and secondly, the conduct of labour is not as it should be.

The ideals of both these are described by Watson and Tweedy and have already been mentioned.

These principles cannot be applied universally, because for one thing the fees paid in obstetrics are notably inadequate and more so still in proportion to the amount of work necessitated and the time occupied in their application.

Furthermore, even though the fees were sufficient, yet the general practitioner is unable by reasons of the obligations of a large and busy practice always to fulfil his ideals, whatever they may be, even the mere conduct of a hundred cases during a year meaning a great tie.

In spite of this, however, there cannot be any possible reason for neglecting to make a complete examination of the prospective mother, either on engagement or else six weeks before the expected date of labour. Nor can there be any possible reason for neglecting periodically and regularly to examine the urine, even though the patient fails to send a specimen until so requested.

The question next arises as to the merits of confinement in hospital or the home.

If a normal case be predicted and a good obstetric nurse obtainable, there is no real reason why such a labour cannot be as equally well conducted in the home as in the hospital. That assumes, of course, that interference is not contemplated and the surroundings are sufficiently hygienic and spacious.

On the other hand in any case in which there appears to be abnormality, likely to require interference, the advantages of the hospital are obvious. Therefore, for all reasons the poor are better off in maternity hospitals, whilst the rich are usually equally well provided for in the home or in the hospital. Every case, however, must be considered on the merits. For instance, it should be insisted on that all abnormal cases in all classes of individuals must be conducted in a hospital, whether it be public, private or intermediate. This is quite clear as far as it goes, but it does not cover the question of forceps delivery in a private house nor any minor procedures which may become necessary even in a normal case.

The answer to this is obvious. That in such cases asepsis is often difficult to maintain and this, of course, prohibits the almost routine application of forceps as adopted today by so many, unless some absolute indication arises.

Thus the whole may be expressed in the fact that delivery in hospitals is always preferable and more advantageous than in the home, provided that such a hospital is efficiently staffed and properly conducted.

I would add this rider: That this does not include the indiscriminate application of forceps because the patient happens to be in hospital.

Although, therefore, the ideal is easily deduced, its application cannot always be obtained first of all on account of the cost, next because of the lack of hospital accommodation for everyone and lastly in view of the sentimental views of the patient herself; in other words, the public's lack of appreciation.

Thus it would appear that nowadays obstetrics in private practice is conducted in a variety of manners, which may be illustrated by (i.) the ideal, (ii.) the compromise and (iii.) the abuse.

The ideal is that of thorough antenatal supervision and the proper conduct of labour. And in one's big ideal the latter would be conducted on thorough aseptic principles in an efficient hospital.

Nor must there be any kind of interference unless there be present or arise a definite and absolute indication for such on behalf of either the mother or child.

Thus the complete ideal would appear to be only feasible at present either on the part of the specialist whose fees are commensurate and whose time is not so involved, or else on the part of any general practitioner wishing to attain it and being prepared to make personal sacrifice in doing so.

The compromise would appear to be the procedure most often followed today and generally speaking is productive of good results. The vast majority of the medical profession is conscientious and competent, striving to make the best of conditions and circumstances. Their obstetric practice, although not fulfilling to a letter the ideal, yet is conducted mostly on scientific principles.

Antenatal supervision and examination are performed, but not absolutely in accordance with Watson's requirements. Labour is for the most part well managed, but vaginal examinations are still made by both midwife (or nurse) and doctor without much discrimination. The vulva usually is shaved or else clipped; the latter is quite useless. Rubber gloves are not always worn. Forceps are still too often applied, but they are not employed as a routine. However, the hurry to complete delivery is often very evident and forceps are applied without indication. The third stage is usually satisfactorily managed. The vast majority of cases fits more or less into this class. Abnormal cases are usually recognized and the patients are removed to suitable surroundings.

The abuse constitutes one of the predominant reasons why the same morbidity and mortality are maintained. Whether the patient engages the doctor or midwife, all principles are thrown to the winds.

There is no antenatal care of any kind, vaginal examinations are always indiscriminately made, asepsis is lacking, haste to complete delivery most evident. Gloves are rarely if ever worn, but display is often made of antiseptics. Such conduct has

already been fully discussed in the rationale of prevention.

It would seem as though those labours which end happily, are little less than examples of miracles.

It should be considered criminal to conduct a case as described. And yet I have visions of such a patient in the septic ward with the septicæmic temperature chart, the typical facies, the horrible wounds around the perineum and in the vaginal vault and because of the euphoria, sad though it be, no blame is attached by the patient to the person concerned.

The Training of Nurses and Midwives.

In 1917 the Departmental Committee appointed to inquire into the causes of death and invalidity in the Commonwealth pointed out that the untrained and half trained midwife were the first responsible factors in the high maternal mortality.

Efforts have been made by practically every Branch of the British Medical Association in Australia to control the midwifery nurse and the midwife. And this is the position as it stands today. Obstetrics has attained a hitherto unreached pinnacle amongst its fellow sciences; it has been shown that even if the processes are normal in the majority of cases pregnancy and parturition are on the border line of pathological condition in a very great number. Yet in this twentieth century untrained and half trained women, registered as midwives and enjoying legal State rights, are allowed to supervise cases of such an extreme importance. Even were the collective statistics and results of the labours conducted by them equal to those of the medical man, there could be no justification in this scientific era for such a state of affairs. For is it not in the nature of a paradox? All authorities agree that the proper conduct and management of labour are equal in importance to and are as essential as that of a major surgical operation. Yet the State, representing the *vox populi,* legally permits partially trained and in many cases almost uneducated women to carry on this the most important life-preserving branch of our profession. No words than those of Henry Schwartz could more aptly describe the situation: "Tradition and ignorance are combined in spreading the fable that child-bearing is a physiological process."

The traditional midwife has now outlived her usefulness and as such should cease to function. Her lack of knowledge can be remedied by our supervision and training, but the public's ignorance is a much more difficult problem.

The very great importance of a fully trained obstetric nurse is, however, altogether another matter. By the close cooperation of the medical profession and its ally, the efficient and competent obstetric nurse, will the maternal mortality and in particular morbidity greatly diminish. How can this then be obtained?

Two schemes of training are practical. In the first place three to six months' training in obstetrics done in a recognized maternity hospital should form part of the general training course of all nurses in order to obtain registration. It should be insisted on that a certain educational standard is necessary for all taking up the profession of nursing. Next all nurses before receiving their certificate for general training should be required to pass some tests of their obstetric knowledge, this test to be of fixed standard, as determined by some obstetric body advising the State. In this manner there would exist a large body of proficient women with a certain obstetric knowledge and training who will not only be of great service in a community, but will be agents of our profession in our campaign for better obstetrics and obstetric conditions.

Secondly, those nurses who wish to take up only obstetric nursing, that is to become qualified under the term "midwives," would be required to have (i.) a further course of training and instruction in a recognized maternity centre, to include antenatal instruction and (ii.) a certificate as to their proficiency and knowledge obtained only after examination by a competent body.

All nurses with general training should have a knowledge of the ordinary hygiene of pregnancy. Except under very extraordinary circumstances, no nurses in the second class should have any legal right to conduct a case of labour, that is it should be part of the scheme that every woman in labour must be delivered except in exceptional circumstances by a medical man, whether in private practice or at a maternity hospital.

The scheme of bush nursing as at present operating in Victoria and the similar schemes in other States have been of wonderful value in illustrating the type of nurse required, but this scheme should be extended in two directions: (i.) the provision of proper transport facilities and (ii.) the establishment of maternity subcentres throughout the State. This will be more fully dealt with in another paragraph.

With the changes and improvements in nursing so resulting, there should be eliminated a factor which by reason of its diversities and complexities has been an undermining influence in the advance of obstetrics and an important contributing agent to the morbidity and mortality.

The Education of the Public.

Such alterations and additions as have been suggested, would not entirely bring success unless the ignorance and indifference of the general public were overcome and their universal assistance invoked in this cause.

Firstly, the public must be taken into our confidence and taught what constitutes the good and proper care of the prospective mother. Nor must they be terrified with dramatic stories of suffering and death associated with child-birth.

A very few years ago pregnant women would not easily submit to any form of antenatal supervision or care. There were many apparent reasons for this. Firstly, they saw no necessity for doing so, as their own mothers had not done so. Secondly, there was a certain false perspective concerning

their privacy and independence and thirdly, they were not so advised by their friends, the midwife or their medical attendant.

When antenatal clinics were first established in maternity centres they were sparsely attended, because of these foregoing reasons, but even then beneficial results were at once proclaimed. Thus in the last five years the attendances at the antenatal clinics have multiplied out of all proportion, but what is more important the hospital rate of mortality and the morbidity in particular have been very materially diminished, not to mention also the saving of hundreds of babies.

Today the personal objections on various illogical psychological grounds have commenced to vanish, but in spite of this and particularly in private practice many women will not yet submit to prenatal supervision.

Williams states: "The public must be taught that the conduct of labour complicated by a moderate degree of pelvic contraction is quite as serious as a case of appendicitis and that its proper management requires the highest degree of judgement and skill, while eclampsia or *placenta prævia* are even more serious."

Thus the education of the public must be completed and this will only take place when the principles in the practice of antenatal care and supervision are universally acknowledged and when the people realize what they have a right to expect of their medical attendant. How can this be brought about?

In America following on the publicity given to the report of the meeting of the Committee on Maternal Welfare there developed a widespread correspondence with individuals and lay organizations. These people at once requested information and verification of reports and figures respecting this. Thus the interest of the laity in maternal welfare was shown at once and it transpired that the public may previously have been deceived by ambiguous or misleading statements on this subject.

This should also be the method adopted here. The cooperation of various social lay organizations should be enlisted at once and even of semi-political societies. Take for example the Australian Women's National League and other kindred societies.

The attack can be pushed home by methods of propaganda and thus be the means of combating the vast amount of ignorance and indifference "enjoyed" by many people.

"Indifference is a greater obstruction to progress than ignorance."

The component parts of the personal equation have now been further brought towards a solution.

PART VI.

The Place of Legislation and Organization in the Prevention of Maternal Morbidity and Mortality.

The Commonwealth Maternity Allowance.

Some few years ago a solicitous political party arrived at the conclusions that all the perfection of attendance and all the ideal requirements for a prospective mother could be bought by her for the sum of five pounds. This brilliant suggestion, they thought, would immediately create a sort of Arcadia and mortality from child-birth would disappear; I expect that morbidity was not considered.

This has not been the case and the Commonwealth of Australia pays out annually a large sum of money which could be used to much better advantage. As such is embodied the Commonwealth *Maternity Allowance* (*Baby Bonus*) *Act* and as such it is still a statute, no party daring to remove it from the book.

Certainly every woman delivered of a viable child gets five pounds, but there is no enforcement that proper medical attention and nursing had been obtained, which was the primary object. In many instances proper medical attention and nursing may have been obtained, but in others it is not so and the money has been applied either to buy the infant a perambulator or as the means of celebration for the husband!

In this Act the Government possesses a very powerful lever, were it properly applied, to obtain the improvement that is so greatly desired.

Croll (THE MEDICAL JOURNAL OF AUSTRALIA, December 27, 1924) suggests that this would follow if, before paying the bonus, the Government insisted on a report of: (i.) a detailed examination of the mother six weeks before giving the physical configuration, position of the fœtus and so forth and the probability or otherwise of normal labour, (ii.) a brief history of the labour, with particulars of any resultant injuries and steps taken to remedy the same, (iii.) examination one month after labour. This is open to very serious objection, as no provision is made for antenatal care at a period sufficiently early to enable the obstetrician to recognize any toxæmic condition. It is also quite evident that many members of the public, their ignorance being what it is today, would rather forego the five pounds than submit to such procedure.

However, before the bonus is paid under the circumstances operating at the present time it should be incumbent on the mother to produce evidence of having received antenatal care and of the details of the labour as suggested by Croll and it should be imperative that the doctors should supply this information.

My opinion is, however, that this bonus should be abolished and the money applied to other directions. The amount of benefit likely to result from the application of this money in promoting such schemes as will be mentioned, will be gauged from the amount spent during the last five years by the Commonwealth.

This sum and that expended in the continued maintenance of the Act would otherwise provide for the following schemes within each State:

1. Propaganda and the education of the public by means of lectures, literature and advertisements.

2. Payment to the chief maternity centre of a subsidy in proportion to the number of patients treated there.

Year.	Amount Paid.	Cost of Administration.
1918-1919	£620,080	£11,369
1919-1920	£625,865	£12,785
1920-1921	£700,760	£16,173
1921-1922	£690,700	£15,441
1922-1923	£688,435	£16,008
TOTAL	£3,325,840	£71,776

3. The establishment throughout each State of maternity subcentres, subsidiary centres and antenatal clinics.

4. The payment of subsidies for each woman delivered in approved private and intermediate hospitals.

5. The promotion of the extension of the bush nursing scheme to cover all areas within the State and the subsidizing of this scheme.

6. The establishment of a medical council of research and the provision of means to appoint a research worker at each chief maternity centre.

7. The establishment within each municipality of antenatal clinics working in conjunction with the already existing infant welfare centres.

In order that these schemes may be put into effect, it will be necessary to provide for suitable organization and administration. This will be carried out by both the Government and the University. The Government will pass such legislation as may be necessary and the University and the medical profession arrange for the proper training of students and nurses and even graduates.

There will now be considered the organization and administration of the chief maternity centre or teaching hospital for each State.

The Organization and Administration of the Chief Maternity Hospital.

In order that full benefit may be obtained from the combined efforts, it is of great importance that the teaching of obstetrics be systematically carried out in one centre for each State. Such centre would be the chief maternity centre and would be illustrated, for example, by the Women's Hospital, Melbourne. This obstetric hospital should be complete with all departments necessary for dealing with the practice of obstetrics and should possess an adequate and efficient specialist staff. In addition it should be able to accommodate at least twenty students in residence and also a sufficient number of nurses above those required for the actual duties in the hospital.

At the Rotunda Hospital the actual work and all the teaching are both under the charge and personal supervision of an experienced and capable obstetric surgeon, termed the Master. I strongly advocate that a similar system be applied to each centre throughout the Commonwealth. The question then arises as to the relationship of the hospital to the University.

It has come to be recognized that it is very necessary to create a chair of obstetrics within the Faculty of Medicine at the University. Having created this post, three alternative plans seem to offer the best promise for the better teaching of obstetrics.

The first plan would be for the professor of obstetrics, a part-time appointee, to be assisted in the clinical teaching by the members of the honorary obstetric staff.

The second plan would be for the positions of professor of obstetrics and surgeon-in-chief of the teaching hospital to be held by the same person as a full-time appointment.

The third plan, which I consider to be the best, is as follows:

1. The professorship of obstetrics would be a separate University appointment held by an older man, still practising as a consulting specialist in only obstetrics and gynæcology.

2. A surgeon-in-chief of the obstetric department of the teaching hospital would be appointed by the advisory board. He would be associated with but junior to the professor and the work of both would thus be coordinated. The surgeon-in-chief would be required to reside at the hospital and devote his whole time to the work thereof. The salary would be commensurate with the importance of the post. He would have a full staff to assist him in the work of the hospital. The honorary staff attached to the hospital should have regular periodic conferences with the chief obstetric surgeon in order that new methods be discussed and possibly tried.

The resident staff of such a hospital should consist of in addition two assistant obstetric surgeons who would be house surgeons having previous general hospital experience, one or two junior house surgeons to control the work of the externe department and to assist with any work that may be required within the hospital and a resident pathologist.

The surgeon-in-chief would be responsible for both the training and the teaching of nurses and students and all patients would be under his care.

The following departments and clinics would then be organized within the hospital: (i.) antenatal department, (ii.) the interne department, (iii.) the externe department, (iv.) the "follow-up" clinic, (v.) the pathological and biochemical department. Attached to the antenatal department should be the dental clinic.

The "follow-up" clinic could be organized either separately or in conjunction with the baby health centre attached to the hospital.

A clinic for treatment of venereal diseases should also form part of the coordinated work of the antenatal department.

As an essential part of the hospital administration, there should be included a hospital record department efficiently organized and staffed.

Each department should have standardized charts and case record sheets and all should be assembled together as required.

Much of the value of the work in a large teaching hospital is lost if the statistics cannot be easily compiled. Moreover, such a hospital should issue an annual report, not only giving full and detailed statistics, including morbidity and mortality, but also including full reports of all fatal cases, all cases of interest and any new operations or forms of treatment introduced. This can be efficiently carried out only through the medium of proper and complete records.

Such a scheme is adopted in the Women's Hospital in the State of New York, where the Surgeon-in-Chief, George Gray Ward, has the most perfect administrative system I have seen. In Edinburgh and in most hospitals of America the house surgeons do not have to waste their time in writing at length case histories. These are dictated to expert typistes, one being attached to each surgical or medical unit.

The antenatal department is a comparatively recent addition to the maternity hospital. The extent and value of the work and the teaching that should be carried out there, have already been fully shown.

Therefore, its size, importance and organization must be commensurate with that of the other departments. The work of this department has grown out of all bounds. At the Women's Hospital, Melbourne, for 1919-1920 there were five hundred and seventy-three attendances; the data for the following years are shown below.

Year.	Number of Attendances.	Number of New Patients.
1919	301	—
1920	573	—
1923	2,726	1,341
1924	3,305	1,516
1925	4,196	1,849

Therefore in order that there be no cramping and in order that sufficient space for the examination and demonstration of patients be available, it is time for each maternity centre throughout the Commonwealth to arrange for suitable accommodation.

An ideal would appear to exist at the Tarnier Hospital, Paris, under Professor Brindeau. A room similar to a large ward is used; this contains about twenty beds or examination couches with screens between each. When the patient arrives she undresses, puts on a dressing gown and is placed on one of the couches. Two students are allotted to each patient. They take the history, make a vaginal examination, perform abdominal palpation and external pelvimetry and then make a diagnosis of the period of pregnancy and the presentation, position and the degree of engagement (or non-engagement) of the presenting part. Their findings are then checked by a clinical assistant, several of whom attend the clinic. Later on the chief of the clinic arrives and passing along discusses each patient with the student and thoroughly investigates any abnormalities or interesting features. Thus large numbers of patients are quickly dealt with, no patient is overexamined and the students are given a very adequate training.

What would appear also to be another clinic established on ideal principles is that at the Salamon Infant Welfare Centre at Guy's Hospital, London. As parts of this centre are the antenatal and postnatal clinics, both are under the obstetric department of the hospital. Bellingham Smith, reporting the work done there, strongly advocates the establishment of a dental clinic in association with the antenatal clinic. He states that as a result: "We are satisfied that an enormous improvement in health has resulted, the patients becoming better nourished and better able to nurse the children."

In addition to this clinic there should also be attached a clinic for treatment of venereal diseases; the reasons for this have already been given.

It should not be lost sight of also that attendance at the antenatal clinic must be insisted on for those patients who under the auspices of the externe department are to be confined in their own homes. In such cases when the time arrives the externe student is able to take with him a complete record of the results of her prenatal examination and history and thus is aware of any features suggestive of abnormality. The hospital should also arrange to give to each prospective mother a card, clearly setting out the manner in which she should look after herself during this time and what symptoms constitute danger to her.

The interne department is naturally of the very greatest importance. In this department the chief training and instruction of graduates, students and nurses is given, therefore from the point of view of efficiency it must be fully equipped to deal with both. The following requirements will be necessary for this:

1. A lying-in ward for women actually in labour.
2. Small delivery wards for completion of labour.
3. A clinical theatre where all obstetric operations would be performed. This should be situated adjacent to the lying-in ward and suitable accommodation made for students and nurses.
4. After treatment wards, including special wards for treatment of eclampsia and women delivered by Cæsarean section.
5. Sufficient beds to admit patients from the antenatal department.
6. Sufficient beds to admit all other patients suffering from accidents or complications of pregnancy.
7. A ward sufficiently isolated to which all women with septic conditions could be transferred.

The externe department should be further developed than at present and should form part of the principal work performed by such a maternity centre. It should be completely controlled and managed by the obstetric surgeon in charge of the hospital.

Women to be confined in their own homes must be informed that antenatal attendance at the hos-

pital is compulsory. All patients with dystocia and toxæmia occurring without warning would be brought into the hospital. Each patient would be attended by two students and if desired by her an obstetric nurse could be engaged.

Any patient admitted from the externe department obviously infected should be placed in the "septic ward."

One of the most important clinics to be arranged for by such a hospital would be the "follow-up" clinic. Here all patients from both the interne and the externe departments must attend six weeks after delivery and will be then examined. This examination must be noted on a finalization form which would be attached to the antenatal and interne charts; thus all morbid conditions would be discovered and proper treatment instituted.

It would be advisable to conduct this clinic in close association with the baby health centre attached to the centre.

The social service department should form an integral factor in the organization of a large teaching hospital. It greatly increases the scope of the work and the efficiency of the hospital, for by its activities can touch be maintained with the patients both before admission and following on their discharge. The department is composed of volunteer workers, but with an efficient clerical staff working within the administrative block of the hospital.

Motor transport facilities are essential and a hospital motor ambulance service would be an ideal to be hoped for.

Not only is this service of great value in assisting prospective mothers, but its most important work is the attention bestowed on them afterwards, so that they do not fail to attend the "follow-up" clinic.

This is practically the principle working in the Women's Hospital in the State of New York. There the patients are written to by the Social Service Department and notified when they are to attend the "follow-up" clinic. Of the patients 90% attend on notification, further investigation by the Social Service brings another 5% and only 5% cannot be traced.

This social service should have its numerous branches or auxiliaries attached to each municipality, where an antenatal clinic should be attached to each baby health centre.

It is of great importance that a pathological and biochemical laboratory be maintained at the chief centre in each State. Here the routine work of the hospital would be carried out by the resident pathologist.

The Government, however, should finance the appointment to such a centre of a research scholar to investigate the problems of antenatal pathology, the causes of the toxæmias of pregnancy, the causes of puerperal infection and other important work as may be suggested by the professor of obstetrics.

COMMONWEALTH OF AUSTRALIA.
TOTAL DEATH RATE PER ONE THOUSAND LIVE BIRTHS.

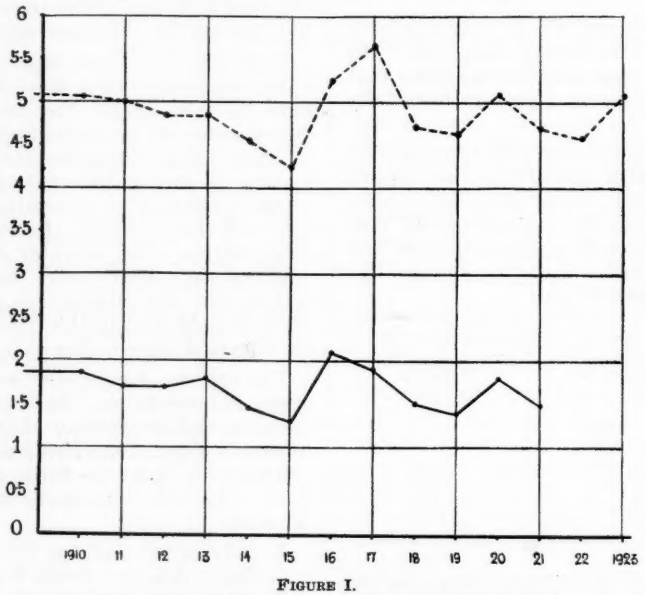

FIGURE I.
Total Death Rate.—From all causes = dotted line; puerperal sepsis = continuous line.

Organization of the State.

If each capital city in Australia possessed a fully efficient and properly equipped maternity hospital (or centre) for the teaching of obstetrics on the lines already suggested, it is confidently expected that a great improvement would immediately result, not only locally, but also in the country districts and that the doctrines and teaching of such a hospital would gradually permeate the rank and file of the profession.

In support of this may be quoted the statement of the late H. M. Biggs: "The work of the New York Division of Maternity and Infant Welfare has definitely reduced morbidity and mortality to such a remarkable degree that it is predicted that in carrying out its plans the deaths of mothers will be reduced 75%, premature births 25% and the death rate of early infancy 40%."

A central hospital would not alone suffice in any State in Australia, for here one of the greatest difficulties is to give the prospective mother in the wayback parts of the bush that antenatal care and advice which are essential and to which she is entitled and also to give her the assurance that the arrangement for her confinement will be satisfactory. How can this be brought about?

It is suggested that maternity subcentres be established in each of the large inland towns in the various States. In Victoria, for example, they could be in such towns as Geelong, Ballarat, Bendigo,

Echuca, Hamilton, Sale, Korumburra, Wangaratta, Swan Hill, Colac, Ararat and Stawell.

It is not proposed that the scheme should at first commence in such detail as would be attained at the height of its development. A beginning on modest lines could be made. Each of the large towns would constitute a maternity centre for a certain district or area and here an approved local practitioner would be appointed as maternity welfare officer at a nominal honorarium. The local hospital would provide for the establishment of an antenatal clinic and in addition a small number of obstetric beds; these would be established in a separate ward or even in an annexe of the hospital.

The maternity welfare officer would be responsible for the conduct of the antenatal clinic.

In addition these centres would have attached to them one or two obstetric nurses, either appointed from some central executive or else by extension of the already existing bush nursing scheme.

Equally important would be the volunteer workers and motor transport of the social service department.

Such a subcentre would eventually operate on similar lines as the chief centre.

In those smaller townships possessing only a cottage hospital a scheme would be maintained in the form of a subsidiary centre through the agency of the local practitioner and a bush nurse.

As an essential part of the scheme local governing bodies, such as shire councils, would provide obstetric equipment in the form of sterile outfits and in those remote districts where patients would be confined in their homes, these outfits could be obtained by them on loan at a nominal charge through the agency of the bush nurse.

The primary object of such a scheme would be the provision of prenatal examination and management of every prospective mother by either the obstetric nurse or the medical practitioner, even though she be in the remotest districts of the State.

The secondary object would be, following the recognition of any abnormality, the removal of the patient to suitable surroundings, cottage hospital, local general hospital or private hospital as the case may be.

On account of the great distances concerned in the sparsely populated areas the question of transport becomes of the utmost importance. In all inland towns and most townships the social service workers should easily be able to provide these facilities through their private motor cars. In those remote areas, where only a bush nurse is stationed, transport still remains a difficulty, but the provision of a motor cycle and sidecar for a nurse would probably meet the situation.

BRITISH EMPIRE AND UNITED STATES OF AMERICA.
TOTAL DEATH RATE PER ONE THOUSAND LIVE BIRTHS.
PERIOD 1916-1920.

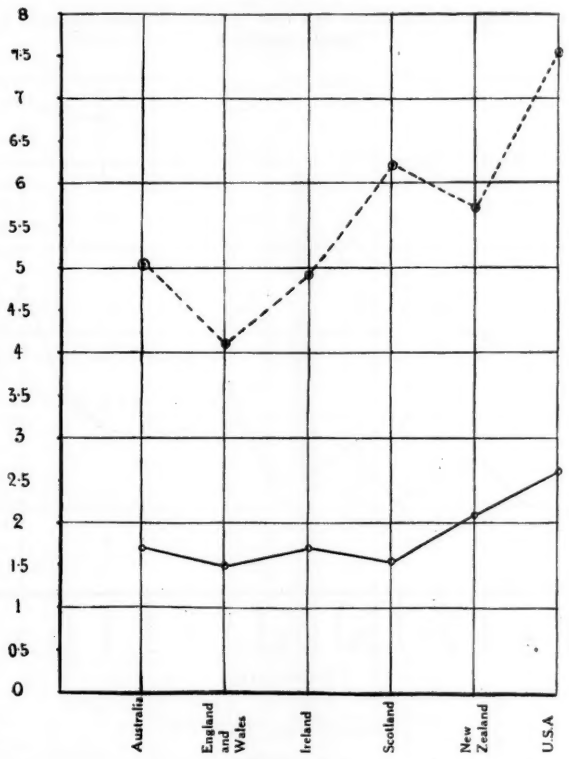

FIGURE II.
Total Death Rate.—From all causes = dotted line; puerperal sepsis = continuous line.

Thus the problems surrounding prevention of morbidity and mortality assume great proportions when applied to the conditions existing "outback" and in some cases even beyond the reach of skilled attention.

Since the introduction of the bush nursing scheme in Victoria there has already been much improvement in this respect and much distress has been alleviated.

The bush nurse has become a great influence in these areas and as she is a fully trained nurse with special obstetric training, she fulfils the ideal of the "obstetric nurse."

As at present constituted the scheme is financially dependent on local government bodies and so it does not cover all areas of the country.

In this scheme the Government and the community possess a valuable asset and it could immediately be extended to meet these requirements. The Government in financing this scheme would thus have to subsidize cottage hospitals, local general hospitals and even private hospitals in proportion to the number of patients dealt with at each and in the case of private hospitals the cost to the patient by reason of this subsidy could be substantially reduced.

Industrial Welfare Scheme.

The question of industrial employment of the expectant mother requires some consideration.

During the early months most forms of occupation are unlikely to prove injurious, but in the latter months long hours of standing, insufficient ventilation, hurried meals and the resulting constipation are very prejudicial to her. At any stage of pregnancy employment in factories where noxious fumes are produced is strictly contraindicated.

Businesses and factories especially employing large numbers of female workers should have attached a part-time medical officer. He (or she) should be required to give regular and frequent lectures on health and hygiene and on prospective motherhood to female employees.

In close connexion with the provision of any such scheme by the Government the housing question where slums exist will have to receive careful attention.

Other Legislative Measures.

It is advisable that the Government review the clauses of the *Venereal Diseases Act* with a view to its further extension and better enforcement. As has already been mentioned, it is considered advisable that there should be compulsory notification of all deaths due to the pregnant or parturient state.

AVERAGE DEATH RATE PER ONE THOUSAND LIVE BIRTHS.
PERIOD 1900-1910.

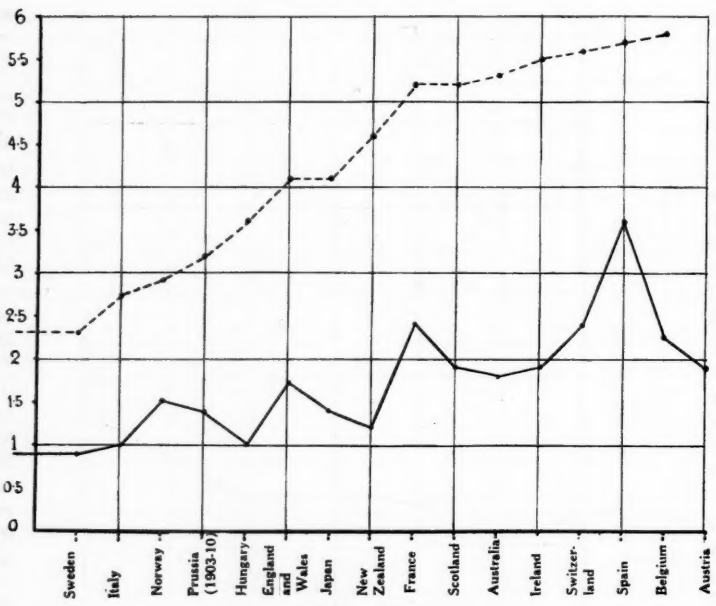

FIGURE III.
Total Death Rate.—From all causes = dotted line; puerperal sepsis = continuous line.

Such a scheme is no doubt ambitious and its cost may be great, but certainly not prohibitive. In the words of Hooper: "We have the beds here, we have the students, the money and the sunshine; there is little or no poverty, plenty of food and skilled attendants."

What, therefore, can hinder its application? It appears practical and easily worked, but will not be until the medical profession and the public have reached the required standard of education in respect to child-birth.

By commencing on modest lines, it should steadily advance until finally it reaches that stage of complete development when every prospective mother will receive antenatal care and every confinement will be properly conducted.

In this manner the mortality and morbidity resulting from pregnancy and child-birth will be reduced to a very small fraction of its present figure and there will remain only that represented by the term "unavoidable."

When this is so, it will be time to devote all attention to this latter group, a very great biological, bacteriological and biochemical problem.

PART VII.

Conclusions.

In dealing with such a vital problem in which so many interests are concerned, any scheme such as that suggested cannot possibly prove a success unless a combined and simultaneous movement is made by all parties.

Many of the suggestions have already been adopted more or less widely, but still the maternal mortality statistics remain almost constant and still so many mothers are bequeathed to the realm of the gynæcologist.

And now in conclusion a summary of what has already been discussed will not appear out of place.

Prenatal care and the proper conduct of labour will reduce the mortality to a very small but nevertheless significant fraction.

Morbidity must still, however, occur, but to a very limited extent.

The process of labour through the evolution of civilization has become such that the infliction of a certain amount of trauma on the individual is unavoidable. But Nature if aided and uninterfered with can almost always restore the function completely even though the anatomy is somewhat modified.

Therefore, control and management as expressed by the art of obstetrics and knowledge of the mechanism of labour, metabolism of pregnancy, bacteriology of infection and others, expressed as the science of obstetrics will both when fully applied eliminate that factor in producing morbidity and mortality termed preventible.

It is to the contributing causes of mortality and morbidity that one must look in order to elucidate the problem.

These contributing causes are introduced through the medium of the physician, the nurse and even the patient.

I have not written an indictment of the medical practitioners, the great majority of whom are fully aware of the existing conditions, but of the individual member who through lack of knowledge and conscience, not only deliberately flouts every scientific principle, but also forgets his own duty to humanity.

I do not blame the midwife entirely, but I do consider the system under which an obstetric case can be conducted by a midwife, to be both a tradition and an anachronism. Therefore, let the midwife attain the efficiency and gracefully assume the title of an obstetric nurse in whom the community and the medical profession will possess a real asset and will be proud to acknowledge.

I do not blame altogether the general public, for they have either been kept in ignorance or else misled as to the reality of the dangers and risks associated with motherhood. But I do appeal for education on this subject to uplift them from their indifference and lack of appreciation and knowledge.

The entire medical profession must be brought to realize that antenatal care and strict asepsis in obstetrics are essentials and that unnecessary interference or "meddlesome midwifery" will one day have to be accounted for to an educated and comprehending public.

Let the educated and efficiently trained obstetric nurse go forth as the ambassador of the obstetrician in such a diplomatic manner as to convince the public of the soundness of such doctrines and let the public be sufficiently informed so that they will not fail to heed such an earnest plea.

The science and the art of obstetrics have now reached such a stage that new and further discoveries will have very little effect in reducing the morbidity and mortality unless the main and primary principles are universally adopted and applied. In other words, if this element of chance can be obviated, then what we have aimed at, will be bound to result. This concerns the personal equation.

I can now deduce that the contributing causes as a factor can only be eliminated in part or in whole by the correction and standardization of the personal equation, that is the education, training and knowledge of the graduate, student, nurse and general public.

I have endeavoured to submit a constructive policy, destructive only of that which must be condemned. And where repetition appears to be commonplace, it is really in the hope that it will effect a better understanding.

And if such a policy succeeds, then will the dawn break, following the long darkness when mortality is a possible and morbidity a probable accompaniment of motherhood.

COPY FROM UNITED STATES DEPARTMENT OF LABOUR—CHILDREN'S FOLLOW-UP SERIES No. 2.

INTERNATIONAL MATERNAL MORTALITY PER THOUSAND LIVE BIRTHS, 1917.

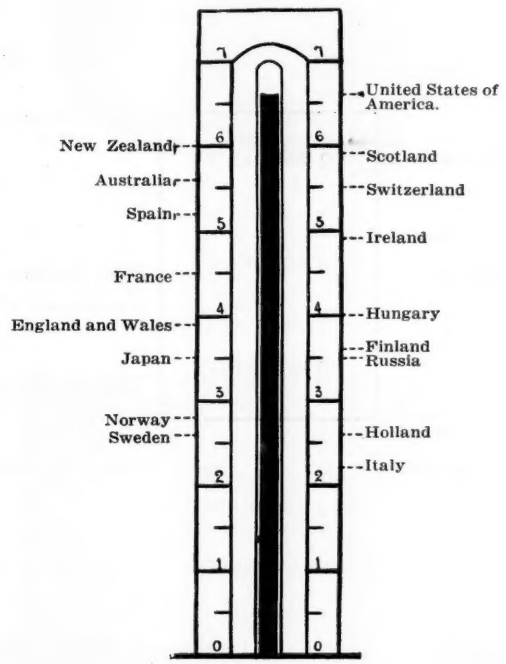

FIGURE IV.

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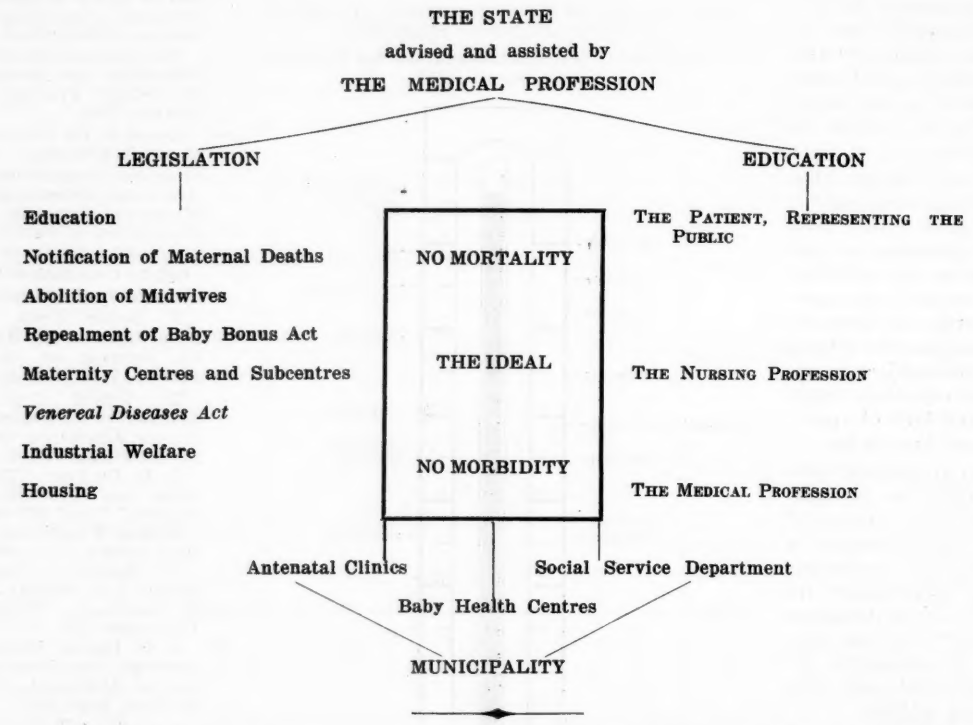

Reports of Cases.

A CASE OF TETANUS NEONATORUM.

By M. J. PLOMLEY, M.B., Ch.M. (Sydney),

Honorary Physician, Royal Alexandra Hospital for Children, Sydney.

GEORGE C., aged nine days, was admitted to the Royal Alexandra Hospital for Children on March 26, 1926, with the history that at 4 a.m. of the same day he stiffened and held his breath for about two seconds. This was repeated at hourly intervals until midday, it recommenced at 6 p.m. and continued until his admission at 9.40 p.m. Food was refused. The cord had separated on the sixth day, the resulting raw area on examination being clean but moist. The child passed a good night and on the following morning appeared normal without rigidity of the limbs or trismus. Next day (March 28, 1926) during examination he became cyanosed and held his breath, the limbs being rigid. The spasm passed in about two minutes. At 6 p.m. the temperature rose to 40·3° C. (104° F.). During the next twenty-four hours convulsions again set in at frequent intervals, especially if the child was handled at all, trismus and rigidity of the extremities occurring with each attack, there being no head retraction or opisthotonus. The breathing became shallow with cyanosis and the fontanelle tense. After lumbar puncture the condition improved, but the child became gradually worse and died during a convulsion at midday on March 30, 1926, four days after the onset of symptoms. Antitetanic serum was given, 2,500 units intrathecally and 7,500 intramuscularly.

The case is reported because of its rarity in the Children's Hospital practice, only this one case in the last three years and to emphasize the necessity for absolute cleanliness in midwifery practice. The infection was conveyed either by the scissors, the ligature or probably by the dressings. Umbilical sepsis occurs not infrequently and in the last three years the hospital records show nine deaths directly due to this cause.

ENCHONDROMATA OF THE LARYNX.

By JAMES J. WOODBURN, M.B. (Sydney),
Honorary Aurist, Renwick Hospital for Infants, Sydney; Honorary Assistant Surgeon for Diseases of the Ear, Nose and Throat, Royal Prince Alfred Hospital and Saint Vincent's Hospital, Sydney.

WHEN Mr. W.W., aged sixty-six years, consulted me, he had been losing weight for twelve months. He was fairly well nourished, but thin and of a good complexion. He suffered from chronic bronchitis though this was not severe. He also suffered from *paralysis agitans*. His teeth and gums were unhealthy.

He complained of a swelling in the neck below and separate from the larynx on the right side. He said that his voice had been hoarse for five years, but that this had become much worse during the preceding five months. Some difficulty in swallowing had occurred about twelve months previously, but this was not accompanied by pain.

When he first consulted me there was considerable loss of voice and difficulty in breathing. On examination I found a hard swelling on the right side of the neck. This resembled a large secondary gland of cancerous origin. It was separate from the thyreoid cartilage which was thickened and prominent on the right side. The lower swelling extended down to the clavicle and after its removal by operation it was found to consist of a chronic inflammatory mass. On laryngoscopic examination a large round swelling appeared to occupy more than half the hypopharynx on the right side. It hid the right cord from view and with the left cord which moved on phonation, it formed a small slit. Through this respiration was carried on with difficulty. The right cord was fixed. The growth involved the right arytenoid cartilage.

The patient's serum was examined by the Wassermann test, but no reaction was obtained. No attempt was made to remove a portion of the growth for purposes of examination as two unsuccessful attempts had previously been made.

Operation for removal of the growth was performed by Dr. J. L. McKelvey. He carried out a deep dissection on the right side of the neck and opened into the lower portion of the pharynx. He removed the cricoid cartilage, the right wing and the lower third of the left wing of the thyreoid cartilage. The patient died five days after operation from bronchial pneumonia.

On examination the tumour was found to consist of an enchondroma. It was attached to the arytenoid and thyreoid cartilages. Its gross and morphological appearances are well seen in the accompanying illustrations.

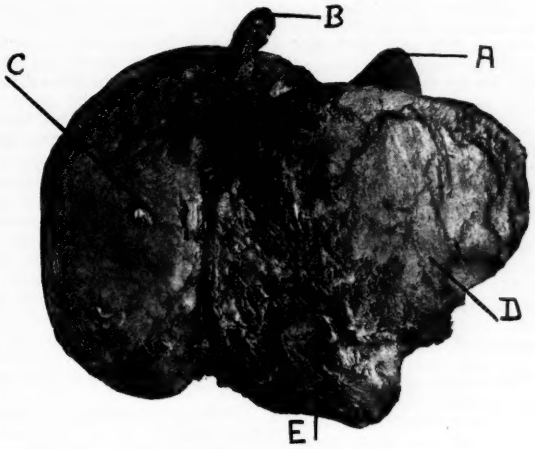

FIGURE I.

Showing Tumour After Removal.—A = arytenoid cartilage perched on the top and anterior portion of the tumour; B = great cornu of thyreoid cartilage; C = the growth, a large chondroma; D = right thyreoid ala; E = cricoid cartilage from the posterior portion of which the growth is considered to have taken origin.

FIGURE II.

Section of Growth, Showing Trabeculæ and Cartilage Cells.

So rare are these tumours that Irwin Moore[1] reported as late as last year that he had been able to find in the literature records of only sixty-two cases. As some of these tumours were not examined microscopically, the diagnosis in some of them must be regarded as doubtful. There are only two known specimens in the London Hospitals and Museums.

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Reviews.

THE UNIVERSITY OF SYDNEY.

IF knowledge be power and its possession the greatest and most priceless endowment of man, our universities as seats of learning and *siéges* of higher education should be our most cherished institutions. Because of their lofty functions we place these schools in the stateliest architectural homes and adorn them with emblems of erudition and wisdom. A great university acquires an atmosphere of learning; the silent walls, the echoing cloisters, the lofty halls speak to us clearly of what is known and what has yet to be discovered. The thoughtful student learns to love each stone, each nook, each cranny of his *Alma Mater*, but holds her in awe, because she makes him realize how insignificant he is, how limited his understanding. It is true that age enhances this undefinable atmosphere, but age does not create it. It exists in several of our relatively young Australian Universities. Mr. Robert A. Dallen introduces the atmosphere of the University of Sydney to the world in word and picture.[1] The second edition of his book on the history and progress of the great centre of teaching in New South Wales must appeal to all. To the student and the member of the liberal professions the appeal is one of intimate association with a live institution where young men and women receive their introduction to the arts or sciences. The story of the birth of the University and its development from small beginnings must strike a cord which vibrates through their whole being. Mr. Dallen has chosen the most fascinating events from the lives of

[1] "The University of Sydney: Its History and Progress," by Robert A. Dallen. Second (Revised) Edition. Sydney, 1925; Sydney University Union. Crown quarto, pp. 60, profusely illustrated. Price: 5s.

William Charles Wentworth and his contemporaries in his account of how the University came into being. The handsome, powerful face of Wentworth lends additional interest to the opening chapter. Again the historical description of each school within the University has a peculiar interest to every student; the many pictures heighten that interest.

To the man of affairs, the man in commercial life who has achieved his position without the advantages of a university education, the book will appeal because he learns to value what has not been his. He will read the story; he will find himself irresistibly drawn in imagination into the stately structures, imbibing knowledge for its own sake and forgetting for the moment the application of knowledge to the everyday events of life. He will find it difficult to withdraw his eyes from the beautiful coloured picture of the University buildings lit by the setting sun which forms the frontispiece of the book.

The artist will take a delight in the work, for each picture is a thing of beauty, each scene an object worthy of study. The youth will devour the book with eagerness and long to become a student of the University of Sydney; the privilege of being able to learn in such a place must not be refused.

We must refrain from following Mr. Dallen through his book. The story must be read in the original; it is well told and even to those who already know many of the details, it can be read with unalloyed pleasure. The descriptive portions are accurate and are given in sufficient detail for his purpose. It is true that we would have wished for more; the subjects have not been exhausted.

The third aspect of the book, the progress of the University and of the several schools within it, is perhaps too briefly handled. But it is an interim report and in a few years there will be demand for a further instalment. We trust that Mr. Dallen will not turn a deaf ear to the demand when it comes. In the meantime we can recommend everyone to purchase a copy from the Sydney University Union.

PHYSICAL DIAGNOSIS.

To American medicine and surgery as to British the Great War came both as a keen stimulus and at the same time as a keener criticism. Men whose errors in diagnosis or treatment had been hitherto sunk in the obscurities of private practice, now found them brought out and most critically examined by their seniors and fellows, too often to be found wanting.

To prevent such a state of things arising in their medical corps, conscious possibly of the very uneven material it would presently have to absorb, the United States Army began by establishing special schools for teaching the medical officers who were being called up. Two subjects in particular were found to need special tuition, diseases of the heart and diseases of the lungs.

Two of the most able teachers in these subjects would appear to be Doctors Bushnell and Pratt. They devoted themselves to diseases of the lungs and heart respectively and they have embodied their teaching in a very sound manual.[1] It is safe to say that officers who had received the teaching given here, would be more alert and skilful workers for it.

They follow on the whole the old principles, but there is a great deal of new work. While not rivalling such a book as that of Morris and Landis for exhaustive detail, they certainly give a very full account of methods and their application. The book includes chapters on diseases of both heart and lungs and also a chapter on electrical and X ray methods in diagnosis. Whether it was wise to include such a chapter in a book of this nature is a matter of opinion. Usually such chapters fail by being either too detailed or not full enough. Here the failure, if any, is due to the first reason.

In any book on diseases of the chest the two most interesting sections are usually those on disordered action of the heart, effort syndrome or whatever the author may choose to call it and pulmonary tuberculosis.

In this book the first of these subjects is treated in a very unsatisfactory fashion. It consists of a crude *résumé* of Lewis's work with a slight reference to the part played by the nervous system and little more. On the other hand tuberculosis receives a thoroughness of treatment that makes these chapters close and interesting reading. The student will find the rival theories of adult and infantile infection discussed and detailed in a simple yet full fashion, while the actual diagnosis from physical signs and symptoms is as lucid and helpful as can be.

There is a special section on tuberculosis in childhood which is also very full and very clearly written, so that this difficult problem may have all the attention it deserves.

The sections on physical examination in detail follow on the whole the usual lines. There are, however, several considerations which are only lightly if at all mentioned by other writers on physical signs. There is an excellent chapter on physics and physiology dealing with the vexed question of how the sounds are produced. This chapter would be a great help to every student struggling with his first experiences in wards and out-patient rooms. In this chapter, too, the writers insist on the necessity of examining a healthy chest before any pathological conditions are tried and there is a special section on the "displacement of the heart" and a short one on movement of the costal arch.

The nomenclature is that of many writers, but they do not use the word "crepitation," preferring to call sounds developing in the alveoli crepitant and subcrepitant râles.

There is a very good account of so-called atelectasis of the bases, really as they show a variation of the normal breath sounds of the costo-pleural sinus. Here the authors point out a constant source of errors, by which many a patient has been labelled tuberculous when his lungs were perfectly normal.

Of X rays the view is taken that they are only one, albeit an important one, of the facts on which the physician bases his diagnosis.

In the section dealing with the heart Dr. Pratt devotes some twenty pages to the physiology of the heart and pulse beat and then turns to methods of examination. He deals first with the ordinary methods—inspection, palpation, percussion and auscultation—very fully and clearly, constantly considering the cause of the sign he is describing.

The pulse is discussed at length and its ordinary examination is emphasized in a way very reminiscent of Mackenzie.

A chapter is devoted to instrumental examinations, blood pressure estimation being regarded as the chief of these. The polygraph and electrical methods receive liberal notice, but all would probably be better considered in special books. The spirometer, too, is surely an apparatus for special treatment.

The chapter on cardiac irregularities is very well done, so well done as to recall Lewis. The author puts little reliance in exercise tolerance tests and considers that vital capacity measurement is a better guide. With this many will not agree.

The chapters on diseases of the "heart valves and myocardium" are clear, simple and complete with a chapter on cardiosclerosis and the senile heart that would save many a young graduate an anxious hour or two. The section on chronic ulcerative endocarditis is weak.

The final chapter deals with aneurysm; the author usually prefers to spell it aneurism. This chapter is weak and sketchy.

The book is excellently printed on paper not too heavy, the diagrams and illustrations are well chosen and reproduced. On the whole the book requires very close reading and can be recommended to the more able type of student, the house physician or even the experienced graduate.

[1] "Physical Diagnosis of Diseases of the Chest," by Joseph H. Pratt, A.M., M.D., and George E. Bushnell, Ph.D., M.D.; 1925. Philadelphia and London: W. B. Saunders Company. Melbourne: James Little. Royal 8vo., pp. 522, with 166 illustrations. Price: 25s. net.

The Medical Journal of Australia

SATURDAY, JUNE 5, 1926.

The Registration of Nurses.

IT is a simple matter to devise ideal conditions governing the relations of patients, doctors and nurses. Disease and ill-health are misfortunes which affect mankind without distinction of race, social status, age, sex or creed. The word patient which is applied to all who come under medical treatment, connotes suffering. Illness, accident and death are the great destroyers. It should follow that those whose function it is to endeavour to stay this suffering, to alleviate pain, to postpone death, should be altruists, persons without care for their own comfort, prosperity or personal advantage. Petty jealousy, commercial competition and indifference to the best interests of the sick cannot find a place in the ideal scheme. In actual life, however, the ideal is unattainable, Utopian. Despite all the rules of medical and nursing ethics, despite the trust imposed by patients in their doctors and nurses, the two professions are often means to gain a livelihood, devoid of their inherent nobility because of commercial and other ulterior motives that men and women have permitted to be insinuated into the undertaking. We need but refer to some of the revelations that have been disclosed recently in regard to the practice of dichotomy and its congeners to substantiate the assertion that the medical practitioner is at times ignoble. Similarly there have been many charges of unworthy conduct of nurses. At times personal convenience, the gratification of personal desires and a disinclination to place the patient's needs before all else are not uncommon faults. There have been some very severe and sweeping indictments against the prevailing system and against the conduct of individual nurses. While we hope and believe that much that has been written and spoken on this subject, is exaggerated, it is beyond doubt that there is an element of truth in many of the charges.

Among the objects that the authorities in Great Britain had in view when medical registration was introduced, was that of gaining a disciplinary control of medical practitioners. Although the establishment of the General Medical Council has not eliminated the defects to which reference has been made, it has achieved some success in checking those practices that are known collectively as "infamous conduct in a professional respect." Many years ago a movement was initiated to secure a similar control of nurses by the adoption of similar methods. While the majority of the members of the medical and nursing professions favoured the proposal, there was a substantial opposition and in consequence the reform was delayed. In Australia the demand for the registration and disciplinary control of nurses by a statutory body in the place of the two admirable voluntary organizations has led to the placing on the statute books of several of the States legislation of this nature. We regret that no serious attempt was made to bring this matter under the control of the Federal Parliament. This is all the more unfortunate because within the past two years an expedient has been found to remove many of the differences existing between the Australasian Trained Nurses' Association and the Royal Victorian Trained Nurses' Association. The *rapprochement*, although to some extent incomplete, augurs well for the future. The new Australian Nursing Federation will probably succeed in introducing a single standard for the whole of the Commonwealth, a matter of the first importance. Whether it will be strong enough to exercise a complete ethical control over all registered nurses in Australia remains to be seen. Its organization will need to be cast on lines different to those on which the Branches of the British Medical Association in Australia have been founded, if a strict discipline is to be exercised over its members. The problems of the nursing profession are not as difficult as those of the medical profession in this respect. An immense improvement has been effected in Great Britain in connexion with the control of nurses in mental hospitals and in hospitals for infectious diseases. The girl who adopts nursing as a calling, is far less removed from the idealist than is the average medical student. It would not be impos-

sible or impracticable to modify the institutional discipline of today to make room for the recognition of a need for humanity in all the dealings of nurses with patients. There is no commercial instinct to be combated, no widespread impulse for self-advertisement and limelight. It is true that a bush nurse sometimes oversteps the mark and enters into medical practice, even in competition with a medical practitioner. But this is rare and the remedy must be sought in statutory control. Nurses do not discover alleged cures for common diseases to the detriment of the public. Neither do they write signed articlces for publication in the lay press on matters connected with nursing, incidentally implying without stating it in so many words that their unique experience, training or ingenuity renders them more competent than other nurses.

On May 19, 1926, the regulations attached to the *Nurses Registration Act*, 1923, of Victoria were promulgated and came into force. The regulations of the New South Wales *Act* came into force a few months ago. In other States the corresponding legislation has been put into effect at an earlier date. The Nurses' Board in Victoria as elsewhere will have ample opportunity to exert vigilance over the conduct of all registered nurses whether trained or registered in virtue of past experience in practical nursing. The necessity imposed upon all registered nurses to renew their registration each year will facilitate this control. The medical profession and the public will watch the effect of the action of the several Nurses' Boards and of the one voluntary organization, the Australian Nursing Federation, on the standards of ethics of the nursing profession.

THE AUSTRALASIAN COLLEGE OF SURGEONS.

A COUPLE of years ago a few leading surgeons in Australia considered whether it would be advantageous to Australian surgery if a society were formed with the intention of becoming affiliated to the American College of Surgeons. It was recognized that in America a few years ago the practice of surgery suffered as it does today in Australia by the limited competence of many general practitioners who did not hesitate to undertake even the most difficult and hazardous surgical operations. Moreover it was recognized that there was a need for the adoption of a high standard of hospital practice and for the creation of some special mark of competence. In the course of discussions that followed this proposal, it became evident that the majority of Australian surgeons would not accept the suggested subjection to the control of an institution in a foreign country. The obvious alternative was put forward, namely that an Australian or Australasian College of Surgeons should be established. It was pointed out that if this were done, it would be possible at a later date, should it be desired, to approach the College of Surgeons of England for the purpose of obtaining recognition or even affiliation. The question was raised whether the proposed College would be regarded as antagonistic to or in conflict with the Branches of the British Medical Association in Australia. In order to answer this question it become necessary to define the aims of those who conceived the plan. It appears that the main objective is the raising of the standard of surgery in the Commonwealth and possibly in the Dominion of New Zealand. This could be achieved by the activities of a body of recognized surgeons in improving surgical practice in hospitals and in private, by requiring those who seek to be recognized as surgeons to subscribe to an undertaking to uphold the dignity and usefulness of surgery and by providing facilities for study and research. It is obvious that these means are not in conflict with the aims and methods of the Brirtish Medical Association. They are complementary to those aims and methods and would be acceptable to the Association.

In February of last year we ventured to discuss one aspect of this question and were taken to task because the proposals then in the air did not appear to offer a solution of the difficulty. It was claimed that an institution similar to the American College of Surgeons should be established in order to confer a hall mark on men competent to undertake major surgery. If this expedient were introduced for the purpose of enabling the public to discriminate between competent surgeons and general practi-

tioners without special training or experience in surgery, the institution would need special legal protection against actions for damages brought by practitioners who might seek the hall mark and fail to obtain it. It appears that a safer plan has been evolved. The reform is to be a gradual one. The Australasian College of Surgeons will be founded with a limited number of original fellows. These practitioners will be admitted after careful consideration of their claims. A high standard of surgical competence and an unquestioned record from an ethical point of view will be required not only of the original fellows but also of all subsequent applicants for admission to the College. The constitution will be based in part on the constitution of the American College of Surgeons and in part on that of the College of Surgeons of England. We understand that those measures which are deemed advisable for the raising of the standard of surgical practice, will be based generally on the regulations of the American College, while the educational measures will be borrowed largely from the English College. It is hoped that the Australasian College of Surgeons will have an original constitution adapted to the conditions of practice in Australia and New Zealand. The obsolete and autocratic government of the English College would be impossible in this part of the Empire. On the other hand there are many features of the American College which would be unsuitable to the British surgeon. The College promises to become a useful institution. If it is wisely and carefully managed, it will raise the status of surgical practice, will further knowledge of pathology and surgical technique and it will set a desirable ethical standard which those outside will be compelled to emulate. It will stimulate its members to engage in research work and to offer the fruits of their labours to their colleagues. It is proposed that it will establish a surgical journal which should take its position among the great surgical journals of the world. It has an important task to perform and unless it is wrecked by an endeavour to perform tasks that cannot be safely carried out except by an organization with a statutory position, it should have a great future.

Current Comment.

DIETS RICH IN PROTEIN AND RENAL INSUFFICIENCY.

IT has been commonly taught that the use of diets rich in protein is contraindicated in the treatment of patients suffering from chronic nephritis. The occurrence of albuminuria as a manifestation of nephritis has been largely responsible for this doctrine. It was thought that if more protein were given in the diet, more protein in the form of albumin would be excreted by the kidney. According to modern and accepted teaching the protein in the blood is not directly increased by the amount of protein ingested. The latter is converted into amino acids in the intestine and these are absorbed and circulate in the blood. From the blood they are taken into the tissues and there they undergo synthesis to take the place of protein which has disappeared as a result of general wear and tear. The principal waste products of protein metabolism are urea, uric acid and creatinin and an increase in these products will naturally result from an increased protein intake. Maclean has pointed out that as these products have to be excreted, their presence may act detrimentally on the kidney so that in certain conditions limitation of protein may be beneficial. He has further stated[1] that it should be remembered that there is no proof that protein food is in any way injurious to the kidney. He holds that the usually accepted doctrine that protein is detrimental requires investigation in the light of modern physiological teaching. While it is only common sense in his opinion to affirm in the present state of knowledge that protein may be injurious in certain cases of advanced renal disease, it is certain that there are numerous cases of nephritis in which the practical withdrawal of protein from the diet does much harm.

Several workers have carried out observations on the production of lesions by the feeding of a diet rich in protein. Reference has previously been made in these pages to work by Newburgh and Clarkson[2] who produced vascular changes by feeding rabbits with a diet containing 36% of protein. Polvogt, McCollum and Simmonds added excess of protein to a diet for rats which was normal in all respects and produced congestive lesions of the kidneys.

Newburgh and Marsh studied the effect on the kidney of the administration of some of the amino acids.[3] They found that the intravenous administration of alanin, leucin, glycin, phenylalanin and glutamic acid gave no evidence of renal injury in doses as large as two grammes per kilogram of body weight. Arginin and aspartic acid were found to be mildly nephrotoxic, but serious kidney damage was produced by lysin, histidin, tyrosin, tryptophan and cystin. They pointed out in commenting on their findings that the concentration of nephrotoxic amino acids following a high protein meal probably

[1] *The Lancet*, February 23, 1924.
[2] THE MEDICAL JOURNAL OF AUSTRALIA, July 14, 1923.
[3] *Archives of Internal Medicine*, November 15, 1925.

does not reach that caused by their injections. The same thing is true of the amino acids and their metabolites in the urine. It is at the same time true that repeated doses of a poison, each too small to cause demonstrable injury, will eventually result in serious damage. They therefore suggested that there might be a similar relationship between the chronic nephropathy from high protein diets and the acute injury following the injection of amino acids. The amino acids normally enter the body from the digestive tract and Newburgh and Marsh pointed out that it may properly be questioned whether information obtained by intravenous injection has any bearing on effects attributed to excesses arriving through normal channels. They concluded that sufficient information is not at hand to assign a place to these new data in the problem of the ætiology of chronic nephritis in man. At the same time the fact remains, as they pointed out, that certain amino acids are capable of producing serious injury of the kidney. They hold that unless future investigators show this fact to be irrelevant, it must be included in any attempt to formulate a comprehensive picture of the ætiology of human nephritis.

It is interesting to note in passing that, if a high protein diet *per se* were a factor in producing renal or vascular changes, Australians should suffer to a considerable extent from such lesions. It has been estimated that Australians consume three hundred and six grammes of meat per day per person, or more than twice that in any other country.

An interesting series of observations has been carried out by Dr. Helding Anderson on the effects of high protein diet in the presence of a low renal function.[4] Dr. Anderson sought to gain information on the effect of prolonged renal insufficiency on the blood pressure and on the influence of a high or low protein diet on the course of chronic renal disease. In the first place he discusses the cause of renal insufficiency in chronic nephritis. This has not been accurately determined. Some hold that it is the outcome of an infective process, others that it is caused by repeated small injuries from irritating food stuffs. It is possible that a high concentration of retained metabolites may be a factor in progressive insufficiency. Major's work on guanidine is more than suggestive and has been discussed in this journal on several occasions.[5,6] Dr. Anderson points out that with the exception of Bell, Clauson and Hartzell who issued a preliminary report in 1925, no one has produced in animals a disease resembling human chronic glomerulonephritis and that several workers have attempted to produce chronic renal insufficiency by removing or destroying a large part of renal tissue. The work reported by him has been carried out along these lines.

In describing his methods Dr. Anderson points out that it is possible to reduce the renal cortex through surgical means by any desired amount and that the remainder of the kidney would simulate the filter found in chronic nephritis. He realizes that the two conditions would not be identical. In chronic nephritis practically all the glomeruli are partially closed and after partial nephrectomy the remaining glomeruli are entirely normal. In all animals experimented upon the observations included periodical analysis of blood for creatinin and urea nitrogen, determination of blood pressure, examination of the fundus and of the urine and determination of the body weight. Healthy rabbits were used throughout. A wedge shaped piece was removed from the left kidney and ten to fourteen days later the right kidney was removed *in toto*. It is obvious that some necrosis will take place in kidney tissue left after partial nephrectomy. This was taken into consideration and it was presumed that the two kidneys would be of equal weight. The amount of kidney tissue removed varied from 62% to 68% of the whole. Two diets were used, a normal diet and one consisting of between 55% and 60% of beef. The beef was mixed with alfalfa and Graham flour which furnished roughage and vitamins. The resulting mixture contained 30·5% of protein, 19% of fat and 50·5% of carbohydrate. All rabbits to which the protein diet was given, were studied before and after operation while they were still on a normal diet and in this way each animal became its own individual control. Forty-four rabbits in all were studied. They fell into three groups. Those in the first group died shortly before or shortly after the second operation. The second group served as controls. They survived the second operation, but were not given a protein diet. The third was the "diet group."

Twelve rabbits are included in the second group. It was found that there was a slight rise in the concentration of creatinin after removal of the wedge of the left kidney. When the whole of the right kidney was removed, there was a definite gradual rise in the concentration of creatinin and urea nitrogen which was progressive until death occurred. The length of time between the second operation and death varied from three to one hundred and sixty-seven days. The health of the animals remained good until the concentration became high. When the concentration of urea rose to eighty or one hundred milligrammes and the creatinin to three or three and a half milligrammes loss of weight and general weakness became apparent. No convulsions were observed before death in any instance. Dr. Anderson expresses surprise at the findings in regard to blood pressure. He expected that the blood pressure would rise proportionately to the reduction of kidney substance. No hypertension was found even in the presence of high grade insufficiency. This is in keeping with the fact that in no instance were any arteriosclerotic changes found even in animals which died after prolonged renal insufficiency. Any rise which occurred (as was seen in two instances) was small and "within normal limits." It must be remembered that the whole question of the normal variation of blood pressure in human beings is by no means settled. Much less is it possible to say what would constitute a normal variation of blood pressure in

[4] *Archives of Internal Medicine*, March, 1926.
[5] THE MEDICAL JOURNAL OF AUSTRALIA, November 15, 1924.
[6] *Ibidem*, October 17, 1925.

a rabbit. This question of blood pressure is of interest when considered in connexion with Major's work on guanidine. Major's investigations suggested that there is a relationship between guanidine and arterial hypertension. He found that if guanidine was injected into the circulation of an animal, a rise in blood pressure of prolonged duration occurred. He found that the urine contained no constant increase in guanidine bases and no storage of these bases was detected in the tissues. Major thought that guanidine has a specific action on the neuro-muscular tissues of the smaller arteries. In the animals experimented upon by Dr. Anderson the arteries were normal and the remaining kidney tissue was normal. This tissue was called upon to work overtime and the end products of metabolism such as urea gradually accumulated. There was probably no abnormal increase in guanidine bases.

Post mortem examination was carried out in all instances. The gross change in the kidney remnant was simple hypertrophy. This was frequently very extensive so that the remnant of the left kidney after removal of the right sometimes weighed as much or more than the right. On microscopical examination varying degrees of hydropic change were found in the tubular epithelium and sometimes atrophy of the tubules and glomeruli with or without dilatation was present. This hydropic change was found only in those animals in which the retention of metabolites occurred. Two possibilities are suggested as causation of this change. The first is that the retained urinary bodies had a toxic effect and the second that the renal epithelium after a period of hyperactivity became exhausted on account of the greatly increased demand made upon it.

The rabbits in Dr. Anderson's third or "diet group" numbered sixteen. They were divided into four subgroups. The first of these, Subgroup A., comprised three normal rabbits. Subgroups B. and C. each comprised two rabbits; from those in Subgroup B. 12% and from those in Subgroup C. 5% of renal tissue had been removed. Subgroup D. contained nine rabbits which had been deprived of 65% of their kidney substance. After operation the animals were fed on a normal diet until the metabolites in the blood had returned to normal. In the case of those from which the larger percentage of renal tissue had been removed, the time required for the return to normal values varied from twenty-six to three hundred and ninety days. Findings of other writers that a rise in blood urea concentration occurs following a high protein diet is confirmed. Dr. Anderson states that he has not seen a description of any similar rise in creatinin. He adds that the common belief is that the concentration of creatinin is independent of the diet. In his experiments the creatinin rose to a high level of concentration which was maintained. He found that the creatinin was a more reliable index than the urea nitrogen, although somewhat less delicate. In his opinion the amount of functioning kidney substance determined definitely the concentration of the metabolites when the diet was given. He points out that Hewlett and Chace and Rose describe a rise in metabolic concentration when much protein is given in the diet; but do not make entirely clear whether this rise occurs in normal individuals or only in those which have a lowered renal function. Maclean also states that the level is higher in nephritis than in normal persons, but does not say definitely whether there is a rise in normal individuals. Dr. Anderson regards his experiments as quite definite on this point.

The blood pressure of the animals in the diet group did not vary from that of the control animals that were operated on. It remained within normal limits at all times, whether the animals were on a normal or protein diet and irrespective of the amount of kidney tissue functioning. Dr. Anderson concludes that neither a reduction of the kidney substances nor a high concentration of urea and creatinin in the blood raises the blood pressure. He infers that when hypertension occurs in chronic glomerular nephritis, there is some other factor causing increased blood pressure.

At *post mortem* examination hypertrophy of the kidney tissue was found. As pointed out previously a degree of hypertrophy follows operative reduction in the amount of kidney substance. It was found that the protein diet had an added effect and also that control animals which were not submitted to operation, manifested hypertrophy. On microscopical examination no evidence of tubular or glomerular injury resulting from the diet was found. Specimens removed at operation were compared with portions removed at necropsy, in some cases after an interval of more than two years. Unless complications had intervened, there were no changes except hypertrophy and in some instances an increase in the extent of spontaneous nephritis. The increased number of scars from spontaneous nephritis found at necropsy is explained on the basis of the increase in age of the animals.

In the vascular system the only pathological condition found was confined to the aorta and the aortic valve. The condition was one of atherosclerosis. The fact that this change did not extend to the small arteries or arterioles is regarded as the explanation of the absence of rise in blood pressure. These sclerotic changes in the aorta did not seem to bear any relation to the amount of kidney substance functioning, but were definitely related to the length of time during which the animal had taken the protein diet. The atheromatous areas were composed of swelling, fatty deposits and degenerative changes in the *tunica intima*. Calcium deposits lay in the *tunica media*. In some areas the *tunica media* contained degenerated fibres with no deposit of calcium. These changes are similar to those described by Newburgh and Clarkson to which reference has already been made. No aortic lesions were found in the control animals and this fact is taken as indicating that the sclerotic changes were due to the diet. At the same time, as Dr. Anderson points out, it cannot be argued with certainty that the protein caused the damage because other possible factors were not controlled. He regards it as possible that in this connexion a deficiency disease has to be considered.

Abstracts from Current Medical Literature.

THERAPEUTICS

"Tryparsamide."

L. D. CODY AND B. Y. ALVIS (*The Journal of the American Medical Association*, January 16, 1926) discuss the use of "Tryparsamide" in patients with and without ocular lesions. Out of two hundred and forty-one patients treated 10·2% complained of subjective visual disturbances and in 5·5% objective ocular damage was found. These results were independent of the size of the dose and the symptoms occurred usually before the fifth dose; they were more frequent in paretic or tabetic patients. If objective signs occurred, withdrawal of the "Tryparsamide" usually stopped the process without causing severe permanent injury. In another series of one hundred and fifty-three patients who had no ocular symptoms at the commencement of treatment, contraction of the visual fields occurred in eight and was permanent in two of these. Of twenty-seven patients whose eyes were abnormal before the use of "Tryparsamide," 10 (37%) became definitely worse after the injections. Experience in the use of the drug enabled the users to obtain better results. Fifty milligrammes of the drug per kilogram of body weight were injected once weekly for eight weeks, then a rest period of four to six weeks was allowed. If visual disturbances occurred, the injections were interrupted for a time and resumed with the same or smaller doses. In the patients treated later in the series fewer visual disturbances and rarer serious ocular damage were noted. The beneficial effects as a rule were considerable and it was concluded that the value of the drug was such that its disadvantages could be overlooked.

Treatment of Hyperthyreoidism.

D. ADLERSBERG AND O. PORGES (*Klinische Wochenschrift*, July 30, 1925) discuss the treatment of hyperthyreoidism with injections of ergotamine (the active principle of ergot). Definite improvement was noted in fifteen out of twenty-two patients, slight changes in four and no alteration occurred in three. It is not an absolute cure, but enables the patient to have periods of remission. Hyperthyreoidism at the menopause was favourably influenced by the injections.

Antistreptococcus Serum.

E. NOVAK (*The Journal of the American Medical Association*, January 16, 1926) records the opinions expressed by twenty-five leading clinicians on the therapeutic value of antistreptococcic serum. Twelve surgeons and thirteen gynæcologists and obstetricians were asked to express their general personal estimate of its value. Sixteen replies were quite unfavourable and eight indicated that it might be of use in certain cases or circumstances, for prophylaxis, in mild sepsis or when the correct strain of streptococcus happened to be selected. The Council on Pharmacy and Chemistry of the American Medical Association considered that after thirty years during which antistreptococcic serum had been in use, more definite opinions might have been achieved as to its value. It is pointed out that commercial houses advertise this serum extensively, but not one of the clinicians appealed to was at all enthusiastic in favour of its use.

Differential Diagnosis and Treatment of Acute Poisoning.

L. LICHTWITZ (*Klinische Wochenschrift*, December 24, 1925) remarks on the greater incidence of acute poisoning following the universal use of drugs especially for headaches and insomnia. After describing the differential diagnosis from other diseases, he refers in detail to treatment. Strychnine and intravenous injections of camphor are very valuable. In elderly persons suffering from morphine or hyoscine poisoning there is a grave danger of sudden respiratory failure after the acute symptoms have subsided. Lobelia is extremely useful in these cases. While many poisons can be neutralized in the stomach by appropriate remedies, those already circulating in the body are unaffected. The value of charcoal as an adsorptive agent has been forgotten by many. He strongly recommends leaving a solution of animal charcoal in the stomach after the use of the stomach pump. Charcoal can also be administered by mouth from time to time in the after treatment. Its greatest value is in cases of morphine, atropine and corrosive poisoning and to a slightly lesser degree with carbolic acid, veronal and chromic acid. Other substances with a large surface, such as kaolin and *bolus alba*, may be used, but are not quite so efficacious as charcoal.

Oral Administration of Certain Pancreatic Preparations.

D. N. SILVERMAN, W. DENIS AND STELLA LECHE (*American Journal of the Medical Sciences*, November, 1925) have attempted to determine the utility of certain commercial pancreatic preparations, their value being determined by a study of the enzymic activity of the duodenal contents before and after oral administration of the preparations. The subjects fasted for fifteen hours. A duodenal tube was then passed into the second part of the duodenum, its position being determined by fluoroscopic examination. About ten cubic centimetres of the duodenal contents were removed and tested for enzymic activity. The pancreatic preparation to be tested was then administered in certain measured quantities, together with fifty cubic centimetres of water and samples of the duodenal contents were removed at intervals for analysis. *In vitro* all the preparations tested manifested digestive activity, particularly as regards proteolytic and lipolytic activity, though some preparations were unable to split cooked starch. *In vivo* the increase in proteolytic activity was very striking and a moderate increase in the ability of the duodenal secretion to split starch was noted. These observers believe, therefore, that these results furnish experimental proof that pancreatic preparations given by the mouth increase the digestive power of the duodenal contents.

Pollen Therapy with Protein-free Extracts.

J. H. BLACK AND MARGARET C. MOORE (*Journal of the American Medical Association*, January 30, 1926) claim to have found that the active substance of pollen is not a protein and that standardization by determination of the nitrogen content and by complement fixation does not determine the content of active substance. They conclude, therefore, that treatment with protein-free extracts should be effective and free from the objectionable features which sometimes follow the injection of foreign protein. During the past summer sixty-two patients, sensitive to ragweed, were treated in order to determine the truth of the above conclusions. The treatment was preseasonal, that is it was given from six weeks to two months prior to the expected commencement of the ragweed season. At the commencement of the season all treatment ceased. In all cases three injections were given each week and the doses were increased only in the absence of constitutional reactions. A ragweed pollen extract of 2% concentration was used. This solution was one year old and was found by intranasal instillation to be as active as at the time of its preparation. By colour reactions and precipitation tests the extract was found to be protein-free. Of the sixty-two patients tested thirty-eight were given perfect freedom from the effects of ragweed, fourteen experienced only very mild and occasional symptoms and ten were little benefited. The authors make no claim that their results were due to the fact that the extract used was free from protein, but their belief is strengthened that protein-free extracts are as potent as those with a high protein content and that the amount of protein has nothing to do with the production of tolerance to the active substance of the pollen.

"Novasural" in Ascites Complicating Cirrhosis of the Liver.

J. GORDON ANDERSON (*Boston Medical and Surgical Journal*, December 31, 1925) considers "Novasurol" a useful agent in the relief of ascites. He believes it to be less irritating to the kidneys than other diuretics. To guard against a possible idiosyncrasy to the drug a preliminary subcutaneous injection is advised. The diet should have a low salt content and fluids must be used sparingly. The treatment is recommended for patients in bad general condition with serious

cardiac lesions and reduced functional activity of the liver cells. As an example the author cites the case of a man aged sixty-one years, first treated by this method in August, 1925. The girth of the patient's abdomen was reduced from one hundred and fourteen centimetres to ninety-three centimetres, dyspnœa and the physical signs of fluid disappeared and the elimination of both solids and fluids increased. The prognosis necessarily is uncertain. The treatment is merely palliative, but its results are already more lasting than those in any other method yet practised. "Novasural" has given excellent results in the hands of Rowntree and he it was who suggested its use to the present author.

UROLOGY.

Hæmaturia in Pyelonephritis.

H. BLANC (*Journal d'Urologie Médicale et Chirurgicale*, August, 1925) discusses the incidence of hæmaturia in the various types of pyelonephritis. In acute pyelonephritis cystitis may arise and be accompanied by vesical hæmorrhages which are usually slight and transient. Also there may be renal hæmorrhages, usually on one occasion only and of short duration; they mark the beginning of the renal infection. Finally, an acute pyelonephritis may provoke an abundant renal hæmorrhage lasting several days and dominating the whole clinical aspect of the case. Chronic pyelonephritis may likewise present a hæmorrhagic form characterized by prolonged renal hæmorrhages lasting for weeks and sometimes relapsing and altering more or less gravely the general condition of the patient. It is important to distinguish a hæmorrhagic pyelonephritis of pyogenic origin from tuberculosis of the kidney, hæmaturic nephritis, infected pyonephrosis, neoplasm of the kidney and calculous diseases, for in the condition under discussion the authors have found that a very simple form of treatment will usually stop the hæmorrhage. The method is to pass a ureteric catheter and leave it in place for an hour or so. If this manipulation does not stop the hæmorrhage, varying strengths of silver nitrate solution may be instilled into the renal pelvis, when success will usually be attained. In the other conditions named above the treatment is either nephrectomy or nephrotomy.

Urinary Infections.

W. F. BRAASCH (*North-West Medicine*, February, 1926) reviews some points in the present knowledge of urinary infections. Most cases of infection of the urinary tract are of the descending type, that is the renal infection is hæmatogenous and it may spread by the ureter to the bladder. It is important to remember that the infection may persist in the bladder long after it has disappeared from the kidneys. Most cases of recurring urinary infection are undoubtedly due to some distant focus of infection and the location of the latter must be diligently sought. A comparatively common type of renal infection is characterized by the formation of single or multiple cortical or subcapsular abscesses and may produce few if any urinary symptoms. Its true nature is therefore easily overlooked. In the history of such patients there is nearly always a recent attack of some form of skin infection with subsequently a chill or malaise and possibly, though not always, a dull ache in the loin. Examination of the urine and cystoscopy and even palpation may produce no evidence of infection. Operative exploration in such cases may reveal a cortical abscess, usually single, which must be drained. With regard to the medical treatment of urinary infections the author considers that internal medication has not been very efficacious. It has been shown recently that ammonium chloride is more effective than any other drug in acidifying the urine. The recently introduced drug, "Hexyl-Resorcinol," has not proved to be very effective in chronic urinary infections. Intravenous "Acriflavine" and gentian violet have both proved failures. Intravenous "Mercurochrome" seems to be of definite value in many cases of acute urinary infections; it sometimes causes toxic symptoms and so should be reserved for use as a last resort in severe cases of infection.

Prostatism and Prostatectomy.

L. A. SURRACO (*Journal d'Urologie Médicale et Chirurgicale*, October 1925) makes a study of the anatomical variations in different forms of senile adenomatous disease of the prostate. In the type of enlargement in which the hypertrophy is mainly periurethral, the two lateral lobes of the prostate project only very slightly into the bladder cavity in the form of a collar or cupola surrounding a rather contracted vesical outlet. By urethroscopic study it will be found that below this contracted internal meatus the urethra widens out somewhat and then further down just above the *verumontanum* the bases of the prostatic lobes are pressed closely together, producing a narrowing of the urethral canal at this point which is of even greater degree than the stenosis at the internal meatus. Around the adenoma is a sheath of connective and plain muscular tissue which the author designates as the periadenomatous "muff." This sheath causes close approximation of the bases of the lobes below, while above it is continued over the tops of the lateral lobes right into the tissue of the internal meatus itself. At this point the plain muscle in the "muff" constitutes the actual internal sphincter and produces a contracture of the meatus which, viewed from the urethral side, projects like a spur. In the second type of enlargement the apices of the lateral lobes and not infrequently a middle lobe in addition project into the bladder cavity by dilating the internal sphincter and thrusting it outwards. In this type of enlargement the only point of narrowing is found at the bases of the lateral lobes just above the *verumontanum*, while the vesical orifice is widely open in the form of a funnel. The author claims that in cases in which for some reason or other the surgeon desires to avoid the risk of a complete prostatectomy, a partial destruction of the prostatic lobes through the cysto-urethroscope will secure a return of the normal urinary function. From the anatomical study just described it appears that the region of the bases of the lateral lobes is the place where urethral closure is most complete during urination, so that if this part of each lobe is burnt away a good result may be expected. Where the internal sphincer projects like a spur this should be burnt away on the floor of the bladder neck. Further anatomical studies show that during the performance of the major operation of prostatectomy the enucleation may be carried out in either of two definite planes: (i.) an intrasphincteric plane between the adenoma and the periadenomatous "muff" and (ii.) an extrasphincteric plane between the "muff" and the prostatic sheath which is formed from the recto-vesical fascia. In the latter type the growth is removed in one piece with the anterior commissure and the periadenomatus "muff." The resulting cavity remains widely open and the bleeding is profuse, coming mainly from vessels at the site of the tearing of the thick resistant urethral tube below and of the vesical musoca above. Packing controls the hæmorrhage only with difficulty. In the former type the anterior commissure is left behind with the "muff" and only the adenomatous tissue is enucleated. Nothing but the actual mucous membrane has to be torn across when the urethra is divided below and often very little of the vesical mucosa is torn. The resulting cavity bleeds very little and contracts readily.

Renal Tuberculosis in Children.

E. FALCI (*Journal d'Urologie Médicale et Chirurgicale*, October, 1925) from a study of renal tuberculosis in children concludes that the disease generally becomes less dangerous as age advances. In children the tuberculous infection tends as a rule to become generalized and even in unilateral cases in which a nephrectomy has been performed, the prognosis is grave. In the latter group the absolute cures number only about 24%, as against 56% in adults. In children the early postoperative mortality is 44% and only 7% in adults. Moreover the incidence of bilateral renal tuberculosis is greater in children than in adults and decreases gradually as age advances. Thus in children 28% of all cases of renal tuberculosis are bilateral, while in adults the figure is only 14%. The evolution of bilateral cases is very rapid towards a fatal issue in children, while in the adult whose defensive reactions are more active, it is slower.

British Medical Association News.

MEDICO-POLITICAL.

A SPECIAL MEETING OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Lister Hall, Hindmarsh Square, Adelaide, on February 18, 1926, DR. C. T. C. DE CRESPIGNY, the President, in the chair.

Fee-Splitting.

DR. A. A. LENDON said that he had carefully read Dr. Norman McArthur's letter and the correspondence which it evoked in THE MEDICAL JOURNAL OF AUSTRALIA. With respect to the editorial comments which some of the writers had criticised, he thought that most of those present would agree with the Editor's statement of and opinions upon the question which had been raised.

If the matter were narrowed down to the question of a surgeon or specialist condescending to give a commission to a general practitioner who sent him patients whether occasionally or habitually, or on the other hand of a general practitioner demanding a share or actually subtracting a moiety of the fee paid to him by his patient for the services of the surgeon or specialist (as described by Dr. McArthur), then there would scarcely have been any necessity for holding that special meeting, for he felt sure that their Branch would agree that it was "not the done thing" in South Australia. To his intense surprise he found that a "General Practitioner" of South Australia alleged that it was of frequent occurrence. Personally he had never heard of an instance.

Unfortunately many red herrings had been drawn across the scent in the shape of irrelevant statements and untenable arguments by anonymous correspondents as excuses for this practice; these required to be disentangled from the main issues of the frequency and the morality of fee-splitting.

It was irrelevant, for instance, to mention that midwifery fees were on too low a scale; it was irrelevant to suggest that the leaders of the profession should devote their surplus energies to assisting the struggling general practitioner by taking active steps to suppress quackery and unqualified practice. This suggestion betrayed evidence both of ingratitude and of ignorance, if the Medical Boards of the sister States were doing, as he had every reason to believe they were, as much for the profession as the Medical Board of South Australia was doing and had been doing for the past forty years. It was no argument, again, for fee-splitting to allege that the leaders of the profession were charging exorbitant fees. No patient was compelled to consult them and it was always possible to ascertain what their fees were beforehand. Dr. Lendon thought that their leaders' fees compared favourably with those charged by the *élite* of the legal profession, who certainly did not do the same amount of gratuitous work as the medical profession. Again one writer complained that when he sent a patient to a surgeon, he was not called in to assist at the operation or to give the anæsthetic. Dr. Lendon considered that an operator was entitled to nominate his own assistant and anæsthetist; not everyone was a born assistant or even a reliable anæsthetist; such team work had come to stay. The practice of fee-splitting would not be rectified by revising the scales of fees which were in existence. Such scales of fees could only be suggestive of the minimum that was considered fair rather than of the maximum that might be charged. Besides they knew from experience how frequently surgeons and specialists did accommodate their charges to their poorer clients.

Again the word "commercialism" had been imported into the discussion. There was one kind of commercialism which eccentric "Mahdis" like Mr. Bernard Shaw, attributed to the profession, that of operating for the sake of a fee where no justification for surgery existed; this surely was very rare. On the other hand there was the "commercialism" involved in the acceptance of fees, of sending out accounts and of sending the collector after such as were unduly laggard. Dr. Lendon sympathized with "Inquirer"; even when virtually in retirement he had scarcely got over the feeling of diffidence himself about receiving a cash fee, but as regards the sending out of accounts and the suing for them, why that was their privilege by the *Medical Acts* and the thing the unqualified person was unable to do; for he could not recover fees in a court of law. There was one exception, he believed, in the case of Members of the Royal College of Physicians of London.

So much for the irrelevant statements and futile arguments in justification of fee-splitting. Dr. Lendon admitted that general practitioners had some real grievances, but two wrongs did not make a right.

To his mind the immorality of fee-splitting consisted in its secrecy. There was a baser form of immorality where a family attendant, when asked to recommend the best man for this or that complaint, deliberately nominated a mediocrity who would give him a secret commission.

In conclusion he moved the following resolution:

> That this meeting of members of the South Australian Branch of the British Medical Association unhesitatingly condemns fee-splitting in the sense of asking for, giving or receiving secret commission as between a general practitioner and a consultant or specialist.

DR. J. CORBIN seconded Dr. Lendon's motion and stated that, though he could bring forward no definite proof, he was sure that fee-splitting was to some extent practised in South Australia and strongly deprecated the procedure.

DR. J. CLOSE stated that he would like to put forward his views as a country practitioner. He went on to say that Dr. McArthur had hinted in his letter that dichotomy was a practice in the country, mentioning an instance of cooperation between two men, one with medical and the other with surgical leanings. There was certainly a practice in the country which one could not believe was a very reprehensible one; what happened usually was this: "A" in one town would have a patient on whom he wished "B" in a neighbouring town to operate, appreciating "B's" surgical ability more than his own. "B," with the usual modesty of the country general practitioner, would not like to admit openly that his skill was greater than "A's" and he went ahead with the major part of the operation.

"A" assisted or gave the anæsthetic according to which seemed the more important. "B's" mileage fees were paid and half the operation fee. Could that be called dichotomy or could it be the kind of thing that Dr. McArthur objected to in the particular case he cited?

DR. JOHN VERCO disagreed with the suggestion that when a medical practitioner called in a surgeon to perform an operation upon one of the former's own patients, it might be considered reasonable for him to demand a higher fee for assisting at that operation than was usually paid him. On the other hand it was reasonable for him to collect from the patient fees for attendance before the operation and for after treatment, when this was not undertaken by the surgeon. In such a case the surgeon should deduct an amount from his usual fee, for operation combined with after treatment. He disagreed with the opinion expressed that a minimum fee should be fixed by the Branch of the British Medical Association for operative work, while the question of a maximum fee should be entirely disregarded.

Attempts to extract abnormally high fees from patients for performing and assisting at operations, simply because it was known that these patients were able to pay them, merited the discouragement of the Branch as a practice calculated to lower the respect of the public for the medical profession.

The motion, proposed by Dr. Lendon and seconded by Dr. Corbin, was put to the meeting and carried unanimously.

Public Health.

MINERS' NYSTAGMUS.

THE following is a record of the evidence given on March 12, 1926, by Dr. Hugh G. Allen, of Newcastle, before the Royal Commission on the Coal Mining Industry, appointed

by the Government of New South Wales. A summary of the evidence of Dr. Rowland Pittar before the same Commission was published in THE MEDICAL JOURNAL OF AUSTRALIA of October 10, 1925, page 466.

Dr. Allen said: In bringing this subject before the Coal Commission I thought it might be advantageous and at the same time be the means of saving a considerable amount of time, if I wrote a brief outline of the conditions of miners' nytagmus endeavouring to bring out the chief features of this affection and so help the members of the Commission to put questions which might tend to solve some of the problems associated with this occupational disease. If these remarks can help to diminish the number of cases of miners' nystagmus which are occurring in the coal fields of this State, then I shall feel we have done something to alleviate this malady which affects the workers in coal mines and our efforts will not have been in vain.

At the outset, I would like to point out that it is impossible to state any accurate statistics regarding the number of cases of miners' nysagmus in this State, as no complete survey of the mines has been made by any medical board to my knowledge. And so it is impossible to state definitely whether miners' nystagmus is very common or otherwise unless one examines many thousands of underground workers actually carrying on work at the coal face and elsewhere when they return to the surface and the conditions under which the men are actually employed.

For some years past I have had many cases of miners' nystagmus coming under my care and I have had ample opportunity of studying the conditions under which the miners have been working, in naked light pits, in oil safety lamp pits and in the electric light pits, in the comparatively low coal seams and in the high seams, as in Bellbird.

My experience and observations in dealing with these cases has only been to confirm the reports of such authorities as Dr. Lewellyn and other members of the Medical Research Council who thoroughly investigated the question of miners' nystagmus in Great Britain and elsewhere. My views agree fundamentally with those expressed by this Research Committee and my clinical work in the Newcastle district only lends support to the theories enumerated by these world authorities.

Miners' nystagmus is an occupational disease of the nervous system which is confined to workers in coal mines. The nystagmus is quite unlike the ordinary nystagmus of cerebral disease and other nervous disorders. Miners' nystagmus in my experience is chiefly of a rotatory character. It can often be readily seen without having to employ certain tests or again one may have to get the patient to follow an object in an upward direction to elicit the oscillations. These movements of the eyes are increased by stooping or exertion and are more readily seen in a darkened room. Both eyes are affected. It is always present in one stage or other of the disease, but may be difficult to elicit.

Another physical sign of the disease is head tremor. The best way to elicit this head tremor and at the same time to demonstrate the nystagmus is to ask the patient to bend down, flex his head strongly and look upwards. There is a definite sense of head resistance and a fine tremor felt, which gradually becomes coarser.

Lid spasm associated with photophobia is another physical sign. Some of the miners have considered this to be due to the blinking of the eye to prevent flying bats striking the eyes, but I think this is a protection against the photophobia.

Associated with these physical signs one meets with a number of symptoms complained of according to the severity of the affection.

Loss of Sight.

Very often men will complain of this before any movement of the eyes is seen. They complain that their vision is defective at night time and that they cannot see when it is dusk. This is due to a failure of dark adaptation and is a common symptom often shown by men not being able to get accustomed to the dim light of the pit on first going below. This has a practical bearing on the question of stone dusting the roadways, which greatly increases the illumination, and the transference from bright light to a modified darkness, as by stone dusting or whitewashing the roadways, makes this loss of dark adaptation less noticeable before reaching the coal face.

Later on the man complains of objects dancing and lights revolving.

Headache, giddiness, photophobia and a train of mental symptoms are found in marked cases of miners' nystagmus and these constitute the neurasthenic symptoms which often give rise to so much trouble in the treatment of this disease.

Causation.

I think the more one examines the conditions under which the men work, one cannot help coming to one conclusion and that is defective illumination is the sole cause. I admit there are predisposing causes and one should not be dogmatic in his statements. Various theories have been brought forward from time to time, each has held a certain sway, but the consensus of opinion now generally adopted is that miners' nystagmus is definitely due to defective illumination and the best way to eliminate it is to improve the lighting conditions under which the men work. I must admit I had a leaning towards the position theory, *id est* the position in which a miner worked, say in "holeing," lying down in a seemingly awkward position using his pick and with his eye muscles apparently strained in fixing his gaze, but one has only to visit the mines and see the men at actual work to realize that this theory does not carry any weight. Here we find practically no "holeing" done, the coal seams being high, the men working practically in an upright position and it did not take long to realize that position could not play any part in the causation of nystagmus. But what we did find on every occasion was the more cases of nystagmus noted, the more defective was the illumination under which they worked, in other words the oil safety lamp was being used and in comparison with other lights examined the oil safety lamp at its very best was a poor and defective light. I have seen and examined between one hundred and two hundred cases of nystagmus during the past five years, and practically all gave the same history, *id est* they had been working with oil safety lamps. I cannot remember having seen more than one or two cases of nystagmus who had been working with the naked lights, and if such cases do occur, very often the history of the patients reveals the fact that they have previously been working in safety lamp pits and may therefore have had latent signs of nystagmus. I believe it is possible for other men besides miners at the coal face to get nystagmus. It has not been my experience to examine such workmen and find nystagmus, although many have consulted me for various other eye troubles. The actual work of the miner, picking the coal in a defective light, concentrating his gaze on a certain area of black coal which absorbs a very high percentage of the light rays seems to me to be the essential cause in the production of this malady.

The question arose often in examining the miners: Why do we find the naked light pits comparatively free from nystagmus and the safety lamp pits a regular "focus of infection"? The answer is not hard to find. Several naked light pits were examined and safety lamps were compared against the naked light. The illumination from the naked light had more volume, was more generalized, was carried on the cap of the miner and so could be brought nearer the coal face, could be increased by using more of the wick, was many times a better illuminant than the oil safety lamp. On every occasion the management was asked to supply the best oil safety lamp procurable, so as to give it a "fair go" as the miner says, but at its very best the oil safety lamp was found to be a poor substitute for a decent light with which to work. Often it was placed some feet or yards from the coal face, whilst the miner worked the rays from its light being interrupted by the miner himself in working, the cap of the lamp casting a dark shadow upwards and the supporting side bars casting shadows on either side.

Further comparisons were made with the electric safety lamps of various types and each was compared with the other and also with the naked light and oil safety lamp. The conclusion come to in every case was that the oil safety lamp was far behind the others from the point of illumination. I made inquiries at several pits and got an approximate candle power for each of the lamps used, with the following result:

1. Electric safety lamp, Kingsway type, with no side pillars, 1¾ to 2 candle power at commencement of shift; 1 at end of shift.

2. Oil safety lamp (Paterson and Davis type) Bifold, 0·6 at first part of shift; 0·25 at end of shift.

3. Naked light, 5 to 6 candle power.

Other types of electric light safety lamps were examined and tried at the face and elsewhere, notably the Oldham cap lamp which is a reflected light and Edison cap lamp. No acetylene lamps were seen. I understand these are used largely in Japan. So that on comparing these various lamps, the naked light is easily the best and it is in these naked light pits where practically no nystagmus exists.

I realize there are many other considerations to be given with regard to naked lights in coal mines. I am merely looking at it from the point of illumination. These other considerations are actively employing the attention of the Coal Commission at the present time and if naked lights are to be condemned from a safety point of view, then we must look for the best illuminant under the circumstances.

In my opinion, the Oldham cap lamp is the most serviceable for the miner, provided it can be suitably worn. It has the advantage of allowing the miner to concentrate his light on the face where he is working; it gives a relatively good illumination and is always present when he wants it. I noted several wheelers at Pelaw Main using this type of lamp and carrying the lamp on their chest. This apparently was quite satisfactory and prevented any complaint about the freedom of movement of the head with the lamp in its usual position.

Failing the cap lamp, the Kingsway electric safety lamp, with no pillars at the sides to obstruct the rays of light was the best seen, provided the shield is judiciously used by the men both going to their work and whilst at work to prevent the direct rays of light striking their own and their fellow-workmen's eyes. The canary coloured glass attached to these lamps certainly cuts out some the glare, but at the same time reduces the illumination and so is not as good as the ordinary glass. My experience amongst the men was that those suffering in any way with their eyes either from symptoms of nystagmus or other ocular trouble, preferred to use the tinted variety.

Diagnosis of Miners' Nystagmus.

Diagnosis of miners' nystagmus is made by noting the presence of rotatory movements of the eyeballs. In most cases the diagnosis is easy. The patient should fix his gaze on some object held on a level with his eyes about twelve inches away and if no oscillation of the eyes is noted, gradually get him to follow the object upwards, keeping the head still. Note the level at which oscillation occurs; it gives a rough test as to the severity of the disease. If no oscillation still occurs, get the patient to stoop quickly and then examine for oscillation as soon as he sits up. Failing this, darken the room and re-examine after a while. I have found a patient will often exhibit nystagmus when being examined by the ophthalmoscope in a dark room, though not showing oscillation in the daylight except to the head test as described before.

The patient may complain of symptoms, but have no oscillations and when reexamined another day show definite oscillation. I have not seen a case of true lateral nystagmus in miners' disease; the oscillations have always been rotatory and I believe this to be the true movement. I do not believe oscillations in miners' nystagmus can be simulated, although it is on record that certain voluntary cases of lateral nystagmus have been seen. Some cases have definite symptoms of nystagmus and their history suggests the presence of the disease and yet no oscillations can be elicited. I have records of such cases who later on exhibited definite oscillations of the eyes in addition to other symptoms. In such cases one must take into consideration the type of individual one is treating, the severity of the symptoms and make several examinations before giving a negative diagnosis.

"Oscillation of the eyes *per se* is not necessarily a cause of incapacity." Many patients have come to me with marked rotatory movements of the eyes, not complaining of any disability, carrying on their work as usual and not even aware that they had nystagmus. Others again well aware of the nystagmus, still persist in carrying on their work and ask not to be certified as suffering from nystagmus and apparently they are well able to work in a normal manner. Each case must be judged on its own merits. Of the large proportion of miners who show signs of nystagmus, only a small proportion become incapacitated for work underground.—*British Journal of Ophthalmology.*

Treatment.

I have already dealt with the conditions in the mines themselves, namely increase the illumination by suitable lamps and in addition where possible make the roadways more illuminated by whitewashing or stone dusting.

Regarding the men themselves, for the purpose of treatment I regard the cases in three different classes.

CLASS I.—The mild cases in which rotatory nystagmus can only be elicited on looking upwards and in which there are no marked functional symptoms.

CLASS II.—The moderate cases with fairly evident rotatory nystagmus when the eyes are at the horizontal level in daylight and accompanied by functional symptoms.

CLASS III.—The severe cases with marked oscillations and well marked functional troubles.

I think with improved lighting conditions in the mine, many cases of nystagmus will be able to return to work underground. I advise all cases in Class I. and II. to give up work below ground for a time and to seek employment on the surface. If they have refractive errors, I correct this with the necessary glasses. I advise against over-indulgence in tobacco and prohibit alcohol.

Many of these cases improve and lose all signs and symptoms of nystagmus and return to work below ground. In my experience the views which I have formed and which have been proved clinically, agree in all respects with those enumerated by the Medical Research Committee on this subject and I can do no better than quote a few of their statements in support of my treatment.

1. "Most cases of miners' nystagmus are only partially incapacitated and they benefit physically and psychologically by work. Some require work above ground, others are fit for work below ground. All men in this group should receive every encouragement to start work as soon as possible. In the early stages of the disease, change of work from the coal face is often all that is necessary."

2. "Rest from pit work and surface employment are the only specifics for nystagmus. Tonic treatment directed towards the general health of the patient is of some assistance.

"To tell a miner that he should never go down a pit again is almost to pass a sentence of industrial death upon him."

3. "It is not too much to say that surface employment plays as great a rôle in the treatment of the disease, as work underground does in its production.

"No man loses his sight from nystagmus. The first duty of any medical attendant is to assure his patient not only that the disease is not incurable, but that on the contrary, cure is certain."

There are a certain number of cases in Class III. with which one meets in the course of one's practice, the severe forms with marked functional symptoms and which undoubtedly should give up all work for a time, but to my mind, if a medical attendant treats all his cases as belonging to this category, he is doing the very thing which

influences the severity of the symptoms. He makes the patients understand they are seriously ill, that they cannot work until all signs and symptoms disappear. This is contrary to all the opinions of recognized authorities and in my experience is not borne out clinically. Some cases of severe miners' nystagmus never seem to improve, but it is the psychoneurotic elements which remain and these cases belong to the physician rather than to the ophthalmic surgeon for treatment.

I think every encouragement should be given by the management to try and obtain surface employment for Classes I. and II., as it helps very considerably in the treatment of the disease. If no employment is found, the men become depressed and either they return to work below ground and gradually drift into Class III., or they become more engrossed with their physical disability and so establish a vicious circle.

Only a few surface jobs are not satisfactory, namely working amongst machinery or on the moving screens, but even some cases can carry out this work satisfactorily, provided the oscillations are not marked.

With regard to predisposing causes such as errors of refraction, heredity, alcohol and tobacco, all of which have been given consideration during my examination of cases, I can only say that they play a minor part in the causation of the disease.

(*a*) Errors of refraction.—Most of the men have some errors present, some have very defective vision from ocular troubles apart from nystagmus. Nearly all cases have been examined under a mydriatic; all have been examined with the ophthalmoscope. It is only reasonable to suppose that defective vision, if uncorrected, means more effort on the part of the miner to focus especially in a dim illumination and where possible glasses have been prescribed, although naturally a man working at the coal face dislikes wearing glasses.

I do not think refractive errors *per se* cause nystagmus. I have found, however, that those who have nystagmus and require glasses, find considerable relief and comfort by wearing their proper correction. My series of cases did not disclose the fact that many are myopic (short-sighted), but I understand others have noted this fact.

(*b*) Heredity.—I can express no opinion on this, as no such factor was elicited in obtaining the histories of the cases.

(*c*) Alcohol and Tobacco.—Nearly all miners seem to smoke or chew tobacco, some take alcohol to excess. It has been noted by Dr. Llewellyn and others that men with nystagmus by taking alcohol can control the oscillations somewhat, but that later it produces a depressing effect and the men are worse.

(*d*) Accidents may cause a latent nystagmus to become manifest.

My advice to the men with nystagmus is to moderate their tobacco, not to chew, as this is more toxic to their systems and to give up alcohol altogether.

The effect of over indulgence in tobacco and alcohol has a depressing effect on the general health and so lowers the vitality and hence may assist in the causation of nystagmus; it is not a cause *per se*.

The question arises: Are there more cases of nystagmus seen in the district since compensation came into vogue? The answer is: "Yes"; because the men realize they are eligible for compensation for an occupational disease. They, therefore, come to be certified and so a greater percentage of cases appear to have been reported. My experience has been that the average miner with nystagmus is a decent chap who wants to get back to his work as soon as he can. Compensation helps him to an extent, but what the man wants is a return to normal vision.

I see no reason why the statistics as shown in the report of the Nystagmus Committee for Great Britain should not be applicable here, except that the climatic conditions and open air life in Australia favour the men here as regards their general health. In conclusion, I trust this report may be of some assistance and help in clearing up some of the problems which the Commission has to unravel.

The history of several patients suffering from miners' nystagmus was read by Dr. May Harris, illustrating and confirming many points noted in the report regarding the diagnosis and treatment. No names of patients were mentioned, each case being given a number, such as Number 1 *et cetera*.

I have the notes of between one hundred and two hundred cases of miners' nystagmus during the past five years; some of these were included in the series read by Dr. May Harris. I am greatly indebted to Dr. May Harris for all her trouble in arranging the various visits to the mines and for the carrying out of the different tests with the miners' lamps.

Also I would like to thank the management of Killingworth, Stockton, Bore Hole, Old Lambton, Seaham Number 2, Pelaw Main and Bellbird Collieries for their courtesy during my examinations.

References.

The British Journal of Ophthalmology, June, 1922, November, 1923, February, 1924.

"First and Second Reports of the Miners' Nystagmus Committee."

QUEENSLAND.

WE note with great pleasure that the Queensland Government has at length decided to reestablish a medical service in connexion with the Department of Public Instruction. Dr. Leslie St. Vincent Welch has been put in charge of this work and we hope that before long he will have a staff of capable assistants working under him.

THE MEDICAL DIRECTORY.

CIRCULARS containing forms to be filled in for the compilation of the Medical Directory have been addressed to every medical practitioner in Australasia. Those who did not reply to the first invitation, received a second circular. There are still many who have not entered the details required on the forms and returned them to The Printing House, Seamer Street, Glebe, New South Wales. The form has been reproduced in this issue and will be found in the Advertiser. Members who have not already sent in their forms, are earnestly requested to tear out the page, to fill in the necessary details and to transmit it to this address as soon as possible.

Post-Graduate Work.

POST-GRADUATE COURSE IN BRISBANE.

THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION has arranged for the holding of a post-graduate course during the week from August 2 to August 6, 1926. There will be no set lectures; the course will consist of clinical demonstrations.

The fee for the course will be one guinea, payable in advance. Those wishing to attend are requested to notify the Honorary Secretary of the Queensland Branch as soon as possible in order to facilitate the preparations. No entries will be accepted after July 20, 1926. If any member of the course desires that a particular subject should be dealt with and conveys the wish to the Honorary Secretary, an attempt will be made to include the subject in the course. Country members are advised to secure accommodation at an early date, as the date of the course is not far removed from that of the Brisbane Exhibition.

The following is the provisional programme.

Monday, August 2, 1926.

Morning Session.—Lantern demonstration of pyelography.
Afternoon Session.—Demonstration of antenatal work.

Tuesday, August 3, 1926.

Morning Session.—Demonstration of orthopædic conditions.
Afternoon Session.—Demonstration of affections of the eye, ear, nose and throat.

Wednesday, August 4, 1926.

Morning Session.—Demonstrations of diphtheria, helminthology and other subjects at the Children's Hospital.
Afternoon Session.—Demonstration of surgical conditions at the Mater Misericordiæ Hospital.

Thursday, August 5, 1926.

Morning Session.—Demonstration of infant feeding at the Baby Clinic.
Afternoon Session.—Demonstration of diathermy at the Mater Misericordiæ Hospital.

Friday, August 6, 1926.

Morning Session.—Demonstrations of blood testing and transfusion of blood at the Brisbane General Hospital.
Afternoon Session.—Demonstration of radiographic work at the Brisbane General Hospital.

Congress Notes.

AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

THE Executive Committee of the Australasian Medical Congress (British Medical Association), Second Session, Dunedin, 1927, wishes to inform Australian members that application for membership should be made at an early date in order to facilitate the work of preparation. Forms were included in the issue of THE MEDICAL JOURNAL OF AUSTRALIA of April 24, 1926.

Concessions on Australian Railways.

The Railway Departments of the several State Governments have agreed to grant concessions to members of Congress and their wives travelling to Sydney or to Melbourne to join the steamer for New Zealand. Return tickets will be issued at a single fare and one-third, provided that at least six members from the State concerned apply for this concession. A certificate signed by the Honorary Local Secretary must be produced when the member books his ticket. Members must reach the port of embarkation not more than three days prior to the sailing of the steamer and the return journey must be commenced within six weeks of the date of issue of the ticket.

Medical Appointments.

Dr. Benjamin Gilmore Wilson (B.M.A) and Dr. John Alexander Cameron (B.M.A.) have been appointed Trustees of the Boys' Grammar School, Ipswich, Queensland.

* * * *

Dr. John Lockhart Gibson (B.M.A.) and Dr. William Nathaniel Robertson (B.M.A.) have been elected Members of the Senate of the University of Queensland.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, ants, *locum tenentes* sought, etc., see "Advertiser," page xxii.

ALFRED HOSPITAL, MELBOURNE: Medical Superintendent.

NEW SOUTH WALES GOVERNMENT RAILWAYS AND TRAMWAYS: Two Assistant Medical Officers (Male).

ST. JOSEPH'S HOSPITAL, AUBURN: Honorary Radiographer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND: Honorary Secretary B.M.A. Building, Adelaide Street, Brisbane.	Brisbane United Friendly Society Institute. Stannary Hills Hospital. Cook District Hospital.
SOUTH AUSTRALIAN: Honorary Secretary, 12, North Terrace, Adelaide.	Contract Practice Appointments at Ceduna, Wudinna (Central Eyre's Peninsula), Murat Bay and other West Coast of South Australia Districts.
WESTERN AUSTRALIAN: Honorary Secretary, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

JUNE 8.—Tasmanian Branch, B.M.A.: Branch.
JUNE 8.—New South Wales Branch, B.M.A.: Ethics Committee.
JUNE 8.—Section of Medicine, New South Wales.
JUNE 10.—New South Wales Branch, B.M.A.: Clinical Meeting.
JUNE 11.—Queensland Branch, B.M.A.: Council.
JUNE 15.—Tasmanian Branch, B.M.A.: Council.
JUNE 15.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JUNE 16.—Western Australian Branch, B.M.A.: Branch.
JUNE 16.—Victorian Branch, B.M.A.: Council.
JUNE 16.—Central Northern Medical Association, New South Wales.
JUNE 16.—South Sydney Medical Association, New South Wales.
JUNE 16.—Section of Obstetrics and Gynæcology, New South Wales.
JUNE 17.—Section of Neurology and Psychiatry, New South Wales.
JUNE 21.—New South Wales Branch, B.M.A.: Organization and Science Committee.
JUNE 22.—New South Wales Branch, B.M.A.: Medical Politics Committee.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

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